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HARVARD UNIVERSITY PRESS

CAMBRIDGE, MASSACHUSETTS

HARVARD STUDIES IN EDUCATION

PUBLISHED UNDER THE DIRECTION OF
THE GRADUATE SCHOOL OF EDUCATION

VOLUME IX

LONDON: HUMPHREY MILFORD
OXFORD UNIVERSITY PRESS

THE SMALL JUNIOR HIGH SCHOOL

A STUDY OF ITS POSSIBILITIES
AND LIMITATIONS

BY
How
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27-8855

CAMBRIDGE
HARVARD UNIVERSITY PRESS

1927

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NORWOOD, MASS., U. S. A.

373.236
5739s

PREFACE

THIS study owes its inception to the influence of Professor Alexander Inglis, from whose courses on the junior high school and on the administration of secondary education was derived my interest in the widespread possibilities of the junior high school reorganization. Though the present investigation was not begun until after Professor Inglis's death, his teaching has been of major importance in determining both the nature and the purpose of this book. It is with a very real sense of indebtedness to him that the study has been carried out.

In the planning of the investigation and in its earlier stages the advice and criticism of Professor Bancroft Beatley of the Harvard Graduate School of Education, of Professor Aubrey A. Douglass, now of the Department of Education of Pomona College, and of Professor Jesse B. Davis of the Boston University School of Education, have been of great value. To Professor Beatley I am indebted also for careful reading and criticism of the study in its completed form.

The personal conferences with superintendents, principals, and teachers of small school systems which the work as a whole entailed, have left an indelible impression of the professional interest and courtesy of these men and women. To all who have thus contributed to the study I should like to express my gratitude. To Superintendent Millard C. Moore of Cummington, Massachusetts, I am further indebted for criticism of the completed work from the standpoint of the administrator in the field.

FRANCIS T. SPAULDING.

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THE SMALL JUNIOR HIGH SCHOOL

INTRODUCTION

The Problem of the Small Junior High School. — The organization of a junior high school in a small community presents problems of re-direction and reorganization of instruction parallel to those of any junior high school program, however large. It demands the solution of these problems, moreover, under conditions of limited enrollment and limited financial resources which make impossible the extensive programs readily undertaken in city school systems. So serious are the handicaps thus placed on the small school that many administrators of small systems have apparently been deterred even from attempting the reorganization. If in spite of these handicaps it is possible to establish and operate true junior high schools in small communities, then every argument upon which the reorganization of city school systems has been based applies with equal force to the schools of our towns and villages. It is highly desirable, therefore, that thorough analysis should be made of the feasibility of the project.

Purpose and Methods of this Study. — Whether complete reorganization can be effected in the individual school must depend in considerable measure upon the expense of the undertaking, and hence upon the taxable wealth of the local community. So variable is the latter factor among differing communities that it affords small basis for general conclusions as to the feasibility of the junior high school organization. Though the problem of expense obviously cannot be ignored, it must be approached rather from the standpoint of reasonable economy in instruction than from that of local ability to pay. Hence primary consideration must be given to those factors which condition economy in school and class organization.

The present study devotes chief attention to the examination of such factors. Through employment of the best standards now available as to the types of procedure which constitute economical and effective organization, it seeks to determine the extent to

which this procedure is practicable in the small school. The problems involved are in part susceptible of a generalized approach, based on mathematical relationships existing between school enrollments and various forms of administrative organization. Since these relationships exist in any small school, irrespective of individual characteristics which may distinguish it from other schools, the conclusions to which they lead may be considered valid for small schools in general. In part, however, the problems involved must be approached on the less absolute basis of examination of conditions found to exist in small schools, but not immediately determined by the schools' enrollments. The data necessary for the latter study, and data illustrative of the more general conclusions, have been drawn in the main from nineteen small schools in Massachusetts. In so far as these schools may be judged typical of junior high schools in other States, the inferences founded on the local data are likewise of widespread significance; though in contrast to the generally valid conclusions based on enrollments, such inferences will, of course, be strictly applicable only to the schools studied.

Schools Contributing. — The detailed information required for the study has been obtained through the co-operation of the principals and superintendents of more than a score of school systems throughout Massachusetts. The schools represented in the various tables which follow are those in Avon, Bolton, Cummington, East Bridgewater, Falmouth, Hamilton, Lincoln, Longmeadow, Lunenburg, Marion, Mattapoisett, Nahant, Orleans, Townsend, Upton, Wenham, West Brookfield, Westport, and Westwood. With the exception of seven schools, this list includes all the junior high schools with a total enrollment of approximately 160 pupils or fewer which were reported to the State Department of Education in October, 1924. The exceptions are composed of three schools which, upon inquiry, disclaimed further title to junior high school organization than that based upon departmental teaching in one or two elementary grades, and four schools which failed to reply to requests for information. Each school included in the study was visited between December 1, 1924, and May 15, 1925. The data presented in the following pages, which rep-

resent conditions at the time these visits were made, were obtained through conferences with superintendents, principals, and teachers. In view of the nature of much of the material thus made available, the schools will hereafter be referred to under fictitious names.

Through the interest of the Supervising Principal of the North Bennington, Vermont, Graded Schools, and the Superintendent and Junior High School Principal of Darien, Connecticut, it has been possible to obtain certain additional information and suggestions bearing upon a six-six organization offering extensive work in agriculture, and a six-three organization presenting somewhat different work from that of similar schools found in Massachusetts. Though the data thus gained have not been presented in the following pages, they have proved of value as a further check upon the conclusions to which study of the Massachusetts schools has led.

It should be noted at the outset that for almost none of the schools concerned do the principals and superintendents responsible claim even approximation to the ultimate organization as they conceive it. Apparent defects in the work of these schools must be interpreted in the light of this fact; and high credit must be given for undertakings which represent in the small school system virtually pioneer enterprises.

PART I

THE PRESENT STATUS AND FUNCTIONS OF
THE SMALL JUNIOR HIGH SCHOOL

CHAPTER I

THE PRESENT STATUS OF THE SMALL JUNIOR HIGH SCHOOL IN MASSACHUSETTS

REPORTS to the State Department of Education in October, 1924, show that 77 of the 355 towns and cities in Massachusetts have adopted some form of junior high school organization. Factors of economy and efficiency of instruction, as well as the widely prevalent assumption that the junior high school reorganization cannot successfully be attempted in the small community, have naturally tended to place emphasis on the establishment of such schools in the larger systems. It is significant, however, that 26 of the school systems claiming such organization, representing one-third of the 77 communities, have individual total enrollments in the junior high school grades of approximately 160 pupils (*i.e.*, five or six class-groups) or fewer.

Determining Factors in the Establishment of Small Junior High Schools. — Since most of these small schools are at present in charge of other principals and superintendents than those who established them, it has been impossible to determine in every case the specific reasons for the reorganization. So far as they are known to the present school officers, however, these reasons are presented for 19 of the 26 schools in Table I. A study of the conditions leading to their establishment offers sound basis for a belief that however handicapped such schools may be by lack of funds, equipment, or enrollment, they are likely to grow in number rather than to decline.

Particularly is this true in communities obliged to depend on the junior-senior high school organization of a neighboring city for tuition of pupils beyond the eighth or ninth grade. At least an approach to junior high school organization is practically forced upon such towns if their pupils are not to be handicapped to the extent of a year or part of a year by the revised requirements for admission to the city schools. Three of the schools

TABLE I

GENERAL FEATURES OF NINETEEN SMALL JUNIOR HIGH SCHOOLS

SCHOOL	ORGANIZATION	ENROLLMENT		TYPE OF COMMUNITY	WHY A JHS ORGANIZATION ¹
		JHS	SHS		
Arnold ²	6-3-3 ³	161	78	Prosperous farming; summer residents	Educational value
Benton	6-3-3 ³	93	43	Farming; industrial	Better preparation for SHS; better teaching
Corwin	6-3-3 ³	89	72	Industrial	Aid retention
Dexter	6-3-3 ³	89	75	Residential; caretakers of estates	Housing conditions
Eastwood	6-3-3 ³	87	33	Farming; industrial	More departmentalization; better teaching
Fremont	6-3-3 ³	71	36	Industrial; farming; fishing	Relieve load on one-room buildings
Gordon	6-3-3 ³	59	44	Summer residents; farming; fishing	Housing conditions
Harlow	6-3	123	None	Wealthy residential; farming	Preparation for out-of-town SHS
Jackson	6-3	77	None	Residential	Preparation for out-of-town SHS; retention
Knowlton	6-3	76	None	Farming; residential	Aid retention; better teaching
Lundy	6-3	67	None	Residential; farming	Out-of-town SHS crowded
Mason	6-3	62	None	Summer residents; farming; fishing	Educational value; social center; retention
Nestor	6-3	46	None	Residential; industrial	Aid retention
Oakwood	6-3	45	None	Farming; small industrial	Retention; pupils too young for transfer
Parker	6-3	30	None	Farming; small industrial	Hold pupils in local schools
Quentin	6-2-4	115	131	Industrial; farming	Housing conditions
Raleigh	6-2-4 ³	42	80	Small industrial; farming	Better preparation for SHS
Selden	6-2	23	None	Farming	Preparation for out-of-town SHS
Tarbell	6-4	27	None	Farming	Educational value

¹ Reasons for the establishment of each junior high school, so far as they were known to principals and superintendents in charge at the time of this study.

² Names of towns in this and following tables are entirely fictitious.

³ Modified six-six organization.

represented in Table I (Harlow, Jackson, and Selden) owe their establishment directly to such pressure from a neighboring city school system; at least five others show in their organization the very definite influence of the systems for whose senior high schools their pupils are being prepared. The spread of the junior high school organization in the cities is thus, in Massachusetts at least, producing a corresponding growth in the number of such schools in the smaller communities.

The desire to hold pupils in the local schools as long as possible proves to be a further stimulus to the establishment of some form of junior high school. Communities which cannot support the burden of a four-year secondary school under the old organization have found in the junior high school a means of offering education beyond the elementary grades, under conditions much more satisfactory than could otherwise be provided. In such towns as Oakwood, Tarbell, and Parker, the reorganization of the upper grades has not merely made possible one or two years of additional work, but has provided a social grouping of the older pupils which has apparently done much to interest the community in its schools and to increase the retention of the older boys and girls.

Local building conditions have frequently proved a deciding factor in reorganization. Quentin, for example, has found it best to concentrate its seventh and eighth grades in a single building, and is therefore proceeding toward the adoption of one type of junior high school. Dexter has taken advantage of the use of one building by the six upper grades to establish a junior-senior high school. In communities which have not perforce found themselves in a similar position, the possibility of abandoning outlying schools and of assuring better teaching and greater economy through a combination of the upper grades has frequently led to reorganization on this basis.

In all these small schools a desire to increase the retention of pupils, a belief in the educational advantages of the junior high school, and community sentiment favoring an approach to the practice of larger systems, have no doubt been further, and very important, contributing factors.

Types of Organization Resulting. — The types of organization found in the nineteen small schools studied in detail are indicated in Table I. Of the total of twenty-six such schools reporting to the State Department, three, upon inquiry, disclaimed further title to junior high school organization than that based upon departmental teaching in one or two elementary grades. The twenty-three remaining schools (including the nineteen presented separately) may be classified as follows:

TABLE II
TYPES OF ORGANIZATION OF SMALL JUNIOR HIGH SCHOOLS

INCLUDING GRADES	SENIOR HIGH SCHOOL IN SYSTEM	NO SENIOR HIGH SCHOOL IN SYSTEM	TOTALS
7-8-9	7 ¹	8	15
7-8	5 ²	1	6
8-9	0	1	1
7-8-9-10	0	1	1
Totals	12 ³	11	23

It is significant that all but two of the twelve systems which include a senior as well as a junior high school have found it advantageous to combine these schools under a modified six-six plan. The group activities of junior high school pupils in these systems are as far as possible distinct from those of the senior high school pupils, the lower school being regarded as essentially a separate unit; but the junior and senior high schools possess a single administrative organization, a common staff of teachers, and a common building.

It is noteworthy also that for the small schools as a whole there is evident a marked tendency to adopt the six-three-three organization; though the problem is complicated by the fact that practically half the school systems represented include no senior high school. At least one of the five schools organized on the six-two-four plan,⁴ with a senior high school in the same system,

¹ All on modified six-six plan.

² 3 on modified six-six plan.

³ 10 on modified six-six plan.

⁴ Detailed reports could not be obtained from three of these schools. (See page 4.)

represents a transition stage which will finally result in the adoption of the six-three-three or modified six-six organization. The types of organization adopted by the schools established on other plans have resulted in each case from special features in the local situation.

This preference for the six-three-three plan rather than for the six-four-two type found advantageous in other small communities (notably in Vermont) is apparently due chiefly to a none too critical acceptance of the models set by the numerous city junior high schools of the State, which for the most part have adopted or have been working toward the three-year organization. Analysis of the peculiar needs of the small community seems in general to have played little part. There are, however, two other factors which may have influenced the tendency in this direction: first, the proximity of most communities not supporting senior high schools to towns where high school tuition is offered, making less advantageous the extension of the junior high school beyond the ninth grade; and second, the large foreign population to be found even in the farming communities, which has apparently had much effect in producing serious elimination in the upper grades despite the junior high school's reputed tendency to postpone the time of leaving school.¹ Whatever the relative importance of all these factors in shaping the small junior high school as we find it, the last two at least are of considerable significance in determining the probable type of organization best fitted to meet the needs of the small communities of the State.

The facts presented in Table I make it apparent that interest in the movement toward the small junior high school is confined neither to one type of community nor to towns having a fairly large school population. Farming, industrial, fishing, and resi-

¹ In this connection the very serious elimination found in Benton, Eastwood, and Fremont is worthy of attention. (See the enrollments for junior and senior high schools given in Table I.) Each of these towns has a large foreign population.

It is of interest, in the light of both the factors mentioned above, to note that the only small junior high school in Massachusetts organized on a four-year basis is to be found in one of the most isolated towns in the State — a community almost entirely agricultural, but populated largely by native American stock. School reports for this town (Tarbell) for the last three years show an unusually low percentage of elimination.

dential communities are alike represented; and schools which enroll less than a single fair-sized class in the junior high school grades, as well as those of much larger numbers, have attempted the reorganization. Such schools have been established in communities of widely varying degrees of wealth and poverty, in practically every section of the State. There is ample evidence, therefore, that the movement is one of general significance rather than mere local concern.

CHAPTER II

THE FUNCTIONS OF THE JUNIOR HIGH SCHOOL

THE term "junior high school" has been rather loosely applied in this study to any school which considers itself to be making fundamentally better provision for the needs of early adolescence than that afforded by the traditional eight-four organization. Under this heading have been included both two- and four-year as well as three-year schools, organized in two or more of the seventh, eighth, ninth, and tenth grades.

So inclusive a definition as this proves of little value in measurement of the results achieved by these schools. It is highly desirable, however, that in judging the work of schools confronted by such special conditions as those affecting the small junior high school, we shall set up no arbitrary criteria as to the mechanical means (departmental teaching, promotion by subject, separate housing of certain grades, and the like) by which they shall approach their task. Valuable as these practices and similar ones may seem to have proved themselves, they have been developed in the main to meet the needs of large schools, not of small; and it is more than possible that in effecting the desired readjustment the small school may well work out a technique peculiar to itself.

In its present stage of development, therefore, it seems hazardous to attempt any formal definition of the small junior high school. Judgment of specific schools must be based primarily on a study of their success in attaining the fundamental objectives of the junior high school movement, whatever the means they employ. The practices established by large junior high schools should, it is true, be regarded for the small school as a source of possibly effective means toward the realization of these objectives. Such practices must, however, be clearly distinguished from the ultimate purposes of the reorganization.

Fundamental Objectives. — In spite of wide differences in the phrasing of definitions, there seems to be general agreement

among writers on the subject that these purposes are represented in a grouping of two or more of the grades between the seventh and the tenth, inclusive, to promote :

- I. An organization of subject matter which shall
 - A. Continue the training begun in the elementary school in those elements of habit, knowledge, and skill which should be a part of everyone's equipment.
 - B. Offer to all boys and girls an insight into the most important fields of human interest and endeavor, as a basis for
 1. Clearer understanding of their duties and privileges both as individuals and as members of society, and
 2. Intelligent choice of their future activities — vocational, avocational, social, recreational, religious.
 - C. Offer to all boys and girls an opportunity to begin training directed toward the activities tentatively chosen.
 - D. Provide for those pupils who must leave school at or before the completion of the junior high school period training which shall fit them so far as possible for immediate entrance into a suitable vocation.
 - E. Make possible the progress of each individual at the rate best suited to his needs and capacities.
 - F. Emphasize in all subjects of study those elements most directly associated with pupils' present and future activities and interests.
 - G. Preserve at each stage a proper balance between the various elements in the pupil's general training and his specialization.¹
- II. The employment of teaching methods to accord with present knowledge of adolescent psychology, individual differences, and effective teaching technique.
- III. The provision of social experience, both within and without the recognized curriculum, which shall fit the individual to become a generously co-operative member of society.
- IV. The establishment of a system of guidance which shall aid the pupil to determine intelligently

¹ The frequently mentioned function of the junior high school in affording a gradual transition from the work of the elementary school to that of the senior high school is omitted from this outline. This function is of undeniable importance, and under the eight-four organization it has been seriously neglected. It is, however, no more a special feature of the work of the junior high school than is provision of similar transition from the kindergarten to the second grade a special function of grade one.

- A. His future lines of activity, of whatever sort.
- B. The course of training necessary to fit him for such activity.
- C. His relations with others with whom he comes, or may come, in contact.

Types of Procedure Commonly Associated with the Junior High School. — Subsidiary to these fundamental objectives are the types of organization and methods of procedure which the experiments of large schools have proved so effective that they are commonly associated with the junior high school reorganization. As to the desirability of certain of these there is less complete agreement than with respect to the basic functions of the junior high school. Their effectiveness in any single school seems likely to depend in considerable measure upon special factors in the local educational situation. Educational experiment and investigation, moreover, and particularly the study of individual differences, are rapidly suggesting changes in procedure hitherto considered highly desirable. Even in the large school system, therefore, present procedure can in many cases be considered merely a tentative answer to the problems of reorganization, rather than a final solution.

Classified according to the purpose to which they chiefly contribute, those practices which have found most general acceptance are probably the following :

- I. In the organization of subject matter :
 - A. The revision of all subject matter to eliminate unnecessary material and to give emphasis to those topics of greatest interest and value to the adolescent boy and girl.
 - B. The organization of subject matter on the basis of year or half-year units, each worth while in itself, even though followed by no further study of the subject.
 - C. The introduction of general courses (including "survey" and "try-out" courses), covering the fields of
 - 1. Literature.
 - 2. Language.
 - 3. The social studies.
 - 4. Mathematics.
 - 5. Science.
 - 6. Foreign languages.

7. The arts (including music).
8. Home-making.
9. Business and commerce.
10. Industry (for both men and women workers).
11. Agriculture.
12. Occupations in general.
- D. Provision for gradually increasing election of subjects.
- E. The introduction of promotion by subject.
- F. Admission to specially arranged courses of study, regardless of regular promotion, of pupils who can profit better by the work of the junior high school than by that of the elementary grades in which they would ordinarily be placed.
- II. In teaching methods:
 - A. Gradually increasing departmentalization of instruction, with the employment of more men teachers.
 - B. Classification of pupils by ability, as determined by study of
 1. Intelligence test scores.
 2. Achievement test scores.
 3. General school records.
 - C. Supervision of study.
 - D. The introduction of socialized classwork.
 - E. The use of the problem-project method.
 - F. Emphasis on the objective measurement of accomplishment.
 - G. Interpretation of achievement in relation to ability.
- III. In the provision of social experience: the introduction of
 - A. Clubs and special student-activities.
 - B. Intramural athletics.
 - C. Student co-operation in school government.
- IV. In the establishment of a system of guidance: the introduction of a systematic program of guidance, in addition to that afforded by the subject-matter offerings of the school, involving
 - A. The appointment of advisers definitely responsible for the guidance of individual pupils.
 - B. The systematic use of intelligence and achievement tests.
 - C. The securing of all possible information relating to pupils' interests, abilities, and needs, as shown through
 1. Their general school records, and
 2. Observation of their out-of-school activities and environment.
- V. For the better accomplishment of all the purposes of the junior high school:

- A. Inclusion in the junior high school organization of grades seven, eight, and nine.
- B. Separate housing of these grades.
- C. The organization of a separate staff of teachers and the provision of special supervision for these grades.

Procedure Possible to the Small School. — A certain part of this body of procedure is as definitely applicable under the conditions of the small junior high school as under those of the large. This part, in so far as it has already been tested and proved valuable, should obviously be adopted. Certain other practices, however, are rendered impossible to the small school by special conditions seriously affecting its organization and maintenance. It is upon these practices and the objectives which they serve that attention must chiefly be focused. If substitutes have been found or can be found whereby the objectives may be adequately attained, the junior high school may be expected to fill its place in the small community as effectively as in the large. If no such substitutes are available, then the work of the small system must remain to that extent definitely inadequate.

The following chapters of this study seek to analyze the difficulties peculiar to the small junior high school, which have most direct bearing upon the possibility of adopting in such a school the procedure common in larger organizations. Though these difficulties may doubtless be traced ultimately to lack of adequate financial support, they find immediate expression in problems of enrollment, teaching and supervision, and housing and equipment; and they are accordingly classified under these heads. Study of the small school's situation in these respects should demonstrate, first, to what extent the usual junior high school procedure is feasible; second, what commonly accepted procedure cannot be employed; and third, in how far through other means the small school may attain the objectives of the reorganization.

PART II

DIFFICULTIES PECULIAR TO THE SMALL
JUNIOR HIGH SCHOOL

CHAPTER III

DIFFICULTIES DUE TO ENROLLMENT

A. THE CLASSIFICATION OF PUPILS

THE enrollment of a junior high school determines in large measure the practices to be adopted in three important phases of the school's work: the classification of pupils in curricular work, the offering of electives, and the provision of extra-curricular activities. Administrative practice in the small junior high school is of necessity markedly different in each of these respects from that of the large school.

Classification of pupils in curricular activities may be based upon one or more of a number of factors, of which pupils' previous school experience, their ability to learn, and their educational objectives are the most frequently considered. According to these factors are determined pupils' school grades, the speed- or ability-groups in which they are placed within a given grade, and the separate curriculum-groups to which they are assigned. Current practice makes almost universal the grading of pupils according to school progress, so that even in the small school grade-lines are in general very definitely established. Classification according to the other two factors is not as generally found — partly because of conflicts in educational theory, but perhaps more largely because of the considerable number of pupils necessary within each grade to make economical sub-division possible.

Standard Size of Junior High School Classes. — The extent to which any form of separate grouping of pupils is to be carried must be determined ultimately by the number of pupils best taught as a single group. We have, unfortunately, no objective evidence which points conclusively to any single number as the optimum enrollment for junior high school recitation groups.¹ On

¹ Results of experimental investigations of this question have been largely indeterminate. See, for example, Stevenson, P. R.: *Smaller Classes or Larger — A Study of the Relation of Class-Size to the Efficiency of Teaching*. J. Educ. Res. Monographs, No. 4, 1923.

the contrary, there is reason to expect in any school wide range in the size of specific classes, to provide on the one hand for necessary differentiation and individual attention, and on the other for the economy possible when pupils can be taught effectively in relatively large groups. Any number adopted as a standard is therefore of necessity based largely on subjective judgment formed through administrative experience. It must be interpreted, furthermore, as an average for the school as a whole, representing not a definite enrollment to be sought in every class irrespective of its nature and the needs of the pupils composing it, but rather a balancing of small classes against large to afford a central tendency.

For the purpose of this study it is assumed that efficiency in junior high school organization demands an average of approximately twenty-five pupils in each recitation class. This estimate is based upon an assumption of approximately thirty-five pupils as the largest class enrollment which will allow effective teaching in the junior high school, and of about ten pupils as the smallest group economically advisable in the ordinary public school. It is recognized that in many systems the average is set considerably higher. In view, however, of the attention to individual differences which the junior high school should make possible, it would seem that the relatively large classes in all subjects necessary to maintain an average much above twenty-five present teaching situations too difficult to be handled with success by the ordinary teacher. A smaller average than twenty-five doubtless represents greater opportunities for individual instruction, but in proportion as it falls below this figure there results a serious increase in the per-pupil cost of teaching. Adoption of this figure as a standard thus affords a general basis for judging both the quality of teaching conditions in terms of the size of class-groups, and the relative economy of the school's class-organization.

It is obvious that if each grade is to be taught as a separate group, maintenance of the standard in required subjects alone demands a total enrollment of at least fifty pupils in the two-year junior high school, and seventy-five pupils in the three-year school. Smaller enrollments make necessary the combination of

grades in certain subjects, at least, if a class-average of twenty-five is to be attained. Sub-division of a given grade in all required subjects is economically possible only when the grade membership rises at least as high as fifty pupils.

The Standard Applied to Massachusetts Schools. — Enrollments of the nineteen schools included in this study are presented in Table III. It is to be noted that only two — Arnold and Quentin — have a large enough number of pupils to justify sub-division of each grade. Sectioning of one grade each is necessary in East-

TABLE III

AVERAGE SIZE OF RECITATION CLASSES IN REQUIRED SUBJECTS COMPARED WITH
25-PUPIL STANDARD

SCHOOLS	GRADE VII		GRADE VIII		GRADE IX		ALL GRADES				
	Enrollment	No. of Groups	Enrollment	No. of Groups	Enrollment	No. of Groups	Enrollment	No. of Groups	Comparison with Standard		
									Avg. Size of Classes	At or Above 25	Below 25
Arnold	64	2	48	2	49	2	161	6	27	X	
Benton	38	1	30	1	25	1	93	3	31	X	
Corwin	30	1	30	1	29	1	89	3	30	X	
Dexter	34	1	27	1	28	1	89	3	30	X	
Eastwood	43	2	23	1	21	1	87	4	22		X
Fremont	26	1	21	1	24	1	71	3	24		X
Gordon	24	1	14	1	21	1	59	3	20		X
Harlow	57	2	31	2	35	2	123	6	21		X
Jackson	25	1	28	1	24	1	77	3	26	X	
Knowlton	24	1	30	1	22	1	76	3	25	X	
Lundy	29	1	25	1	13	1	67	3	22		X
Mason	22	1	21	1	19	1	62	3	21		X
Nestor	16	1	16	1	14	1	46	3	15		X
Oakwood	15	1	16	1	14	1	45	3	15		X
Parker	14	1	7	1	9	1	30	3	10		X
Quentin	64	2	51	2	—	—	115	4	29	X	
Raleigh	21	1	21	1	—	—	42	2	21		X
Selden	11	1	12	1	—	—	23	2	12		X
Tarbell ¹	5	—	12	1	6	1	27	2	14		X

¹ Grades VII and VIII and grades IX and X are combined to form two recitation groups. Grade X enrolls 4 pupils.

wood and Harlow. In Eastwood this division has resulted in the formation of two seventh-grade sections each enrolling less than twenty-five pupils, thus bringing the average for the school as a whole below the standard.¹ Harlow has gained a low school-average not through necessity, but by sectioning all three grades in order to provide distinct curricula. Of the remaining fifteen schools, five — Benton, Corwin, Dexter, Jackson, and Knowlton — have grade-groups large enough to make a twenty-five-pupil average possible. The other ten range in size from twenty-four pupils per grade in Fremont to less than seven pupils per grade in Tarbell.

Though there is every reason to expect nearly if not quite as great a range of individual differences in the small community as in the large, separate grouping to meet the needs of special types of pupils is clearly impracticable in the great majority of these small schools. Segregation of pupils according to vocational specialization is likewise for most of the schools economically unjustifiable.² In the few schools in which special grouping is to some degree possible, no more than two groups can at best be formed in any one grade. The small school must therefore rely on other means than the special grouping of its pupils if it is to provide adequately for individual differences.

Compensation for Small Enrollment through Grade-Combinations.

— The severest handicap in classification to meet individual needs is of course suffered by those schools which are unable to form even grade-groups of standard size. Not merely must these schools provide in single classes for the wide range of interests, abilities, and needs of the pupils of a given school year, but they are forced in many instances to fall back upon combined classes

¹ Such lowering of a grade-average by necessary sub-division occurs, with rigid adherence to a 35-pupil maximum, when the enrollment in a single grade falls between 36 and 49 or between 71 and 74. In certain cases it may, of course, be compensated by class enrollments approaching the maximum in other grades.

² The junior high school at Harlow is the only one of the Massachusetts schools studied which has made use of such segregation in any complete form. Its pupils are divided in all three grades into two groups — "classical" and "technical." A wealthy community and strong public interest in the school make possible in this case a type of organization which would not be feasible under ordinary circumstances.

TABLE IV

COMBINATIONS OF GRADES IN RECITATION-CLASSES IN REQUIRED SUBJECTS

SCHOOLS	GRADES COMBINED	SUBJECTS COMBINED	Enrollment in Comb. Classes	Proportion of Classes Comb.	Average Size of Grade Groups	Average Size of Required Classes
Arnold 6-3-3	8, 9	Music	97		26.8	27.3
Benton 6-3-3	8-12	Music	98		31.0	¹ 35.5
Corwin 6-3-3	7, 8, 9	Physical Training, B.	46			
	7, 8, 9	Physical Training, G.	43		29.7	² 27.8
Dexter 6-3-3	None	None	—		29.7	¹ 30.2
Eastwood 6-3-3	7, 8	Music	66	.01	21.8	¹ 24.6
Fremont 6-3-3	7-12	Physical Training, B.	48			
	7-12	Physical Training, G.	59	.15	23.7	26.4
Gordon 6-3-3	7, 8	Music	38			
	7, 8	Spelling	38			
	7, 8	Physical Training, B.	22			
	7, 8	Physical Training, G.	16	.25	19.7	22.3
	9-12	Physical Training, B.	26			
	9-12	Physical Training, G.	39			
Harlow 6-3	8, 9	Penmanship (elective in 9)	34			
	7, 8	Physical Training, B.	48			
	7, 9	Physical Training, B.	51	.05	20.5	23.3
	8, 9	Physical Training, B.	43			
	8, 9	Physical Training, G.	23			
	7, 9	Physical Training, G.	41			
Jackson 6-3	7, 8, 9	Music	77		25.7	¹ 28.5

¹ See footnote, page 29.² Corwin's small average enrollment in required classes is due to the fact that its ninth grade is divided into two sections for work in English.

TABLE IV (Continued)

SCHOOLS	GRADES COMBINED	SUBJECTS COMBINED	Enrollment in Comb. Classes	Proportion of Classes Comb.	Average Size of Grade-Groups	Average Size of Required Classes
Knowlton 6-3	None	None	—		25.3	25.5
Lundy 6-3	8, 9 8, 9 7, 8, 9 7, 8, 9	Music Drawing Physical Training, B. Physical Training, G.	38 38 30 37	.11	22.3	23.5
Mason 6-3	8, 9	Music	40	.05	20.7	22.2
Nestor 6-3	7, 8, 9 8, 9 7, 8, 9 7, 8	Music Penmanship Drawing Science	46 30 46 32	.12	15.3	17.6
Oakwood 6-3	6, 7 8, 9 6, 7 8, 9 6, 7 8, 9	Music Music Drawing Drawing Physical Training Physical Training	38 30 38 30 38 30	.16	15.0	18.4
Parker 6-3	7, 8 8, 9 7, 8, 9 7, 8, 9 2 groups	Geography Current Events Spelling Penmanship Drawing	21 16 30 30 15	.12	10.0	11.0
Quentin 6-2-4	7 B, 8 B 7, 8 7 B, 8 B	Penmanship Music Drawing	51 115 51		28.8	32.9
Raleigh 6-2-4	7, 8 7-12	English Music	42 122	.11	21.0	23.1
Selden 6-2	7, 8 7, 8 7, 8	Music Penmanship Drawing	23 23 23	.13	11.5	13.3
Tarbell 6-4	7, 8 9, 10 7-10 7-10 7-10	All subjects All subjects Agriculture (elective in 9, 10) Physical Training, B. Physical Training, G.	17 10 19 14 13	1.00	6.8	14.1

TABLE IV (Continued)

SCHOOLS	GRADES COMBINED	SUBJECTS COMBINED	
Number of schools making each sub- ject-combination (Tarbell excluded)		Music	12
		Physical Training	6
		Drawing	6
		Penmanship	5
		Science	1
		Social Studies	1
		Spelling	1
		English	1

of pupils from two or more grades in order to make their offerings economically possible. Table IV shows the extent to which each of the schools has made use of such grade-combinations in its required studies.

The influence of such combinations upon the average of class enrollments is dependent upon two separate factors. The first of these is, of course, the size of the class resulting from the combination. This factor is especially to be considered in selecting the grades for combination. Owing to the greater number of pupils ordinarily enrolled in the lower junior high school grades, combined classes from these grades are obviously more effective in producing a high average enrollment than are classes formed from the upper grades. The second factor is the time-allotment of the classes concerned. The average class-enrollment resulting from two periods each week devoted to a forty-pupil class and twenty-eight periods devoted to twenty-pupil classes is but 21.3; the large class must meet eight times and the smaller classes not more than twenty-two times to raise the average above the standard.

The effect of these factors is shown in the figures given in Table IV. Of the schools providing combined classes in certain required subjects, all but one (Corwin) have an average enrollment in required classes which is considerably above the average enrollment in the grade-sections.¹ Corwin has failed to attain a higher

¹ The fact that Dexter and Knowlton, the schools which provide no combined classes in required subjects, also have class-enrollments slightly above their grade

average because of the division of its ninth-grade English class into two sections, which lowers the average enrollment more than it is raised by the grouping of pupils in physical training. The outstanding example of a class-average raised by many grade-combinations (that is, by a large time-allotment to combined groups) is afforded by Tarbell. This school combines at least two grades in every subject and four grades in each of two subjects, thus achieving an average class-enrollment more than double its average grade-membership. Other relatively large time-allotments to combined classes are found in Gordon and Oakwood. The latter has taken advantage of its location in an elementary-school building to make certain combinations between the sixth and seventh grades, as well as between the eighth and ninth. Time-allotments to combined classes in the remaining schools are comparatively limited; the raising of the average enrollment has been due more often to the occasional grouping of large numbers of pupils than to the frequent combination of smaller numbers.

How Many Combinations Are Necessary to Attain Standard Class-Enrollment? — But although combination of grade-groups has in each case resulted in a raising of the average class-enrollment, we find that of the schools having an average grade-enrollment below the standard only one (Fremont) has been able to attain an average class-enrollment of standard size. The difficulties met by the very small school in reaching the standard are due to the need for a much larger number of combinations than

averages is due to the requirement in these schools of fewer subjects in the upper than in the lower grades. The work of the lower grades, enrolling the largest classes, is almost wholly prescribed; that of the upper grades, enrolling smaller classes, is to a much greater degree on an elective basis. So far as concerns enrollment in required classes alone, therefore, the numerous large lower-grade classes tend to outweigh the fewer small upper-grade groups.

This tendency is found to greater or less degree in most of the other schools — notably in Benton, Eastwood, and Jackson. It may be observed in any small school in which either the upper-grade offerings are largely elective or the program for upper-grade pupils is relatively light. In the latter case pupils not in recitation-classes at a given period must of course be somehow “taken care of”; but they can hardly be counted as forming part of the classes in the recitation-rooms of which they usually occupy the rear seats.

they have provided. This becomes clear if we represent algebraically the factors involved. If A_r represents the average of class-enrollments in required subjects, X the number of hours of combined classes (composed in this instance of all pupils from two grades), T the total number of class-hours, and G the average number of pupils per grade, then

$$A_r = \frac{X \cdot 2G + (T - X) \cdot G}{T}, \text{ and } X = T \cdot \frac{A_r - G}{G}.$$

Assuming the average number of pupils per grade (G) to be 20, then $\frac{25 - 20}{20}$ or $\frac{1}{4}$ the total number of periods allotted to class work must be given to double classes in order to maintain an average class-enrollment of 25. Where triple combinations can be effected, the proportion of time demanded for combined groups is half as great. In this case the formula becomes

$$A_r = \frac{X \cdot 3G + (T - X) \cdot G}{T}, \text{ and } X = T \cdot \frac{A_r - G}{2G}.$$

Thus an average grade-enrollment of 20 pupils will demand triply combined classes during $\frac{1}{3}$ the total class time in order to maintain the standard.

Using this formula, we find the proportions of double and triple combinations necessary to attain an average class-enrollment of twenty-five in schools of given size to be as follows:

TABLE V

PROPORTIONS OF GRADE-COMBINATIONS NECESSARY TO MAINTAIN STANDARD ENROLLMENT IN REQUIRED CLASSES

GRADE AVERAGE	PROPORTION OF DOUBLE COMBINATIONS	PROPORTION OF TRIPLE COMBINATIONS	GRADE AVERAGE	PROPORTION OF DOUBLE COMBINATIONS	PROPORTION OF TRIPLE COMBINATIONS
24	.04	.02	18	.39	.19
23	.09	.04	17	.47	.24
22	.14	.07	16	.56	.28
21	.19	.10	15	.67	.33
20	.25	.13	14	.79	.39
19	.32	.16	13	.92	.46

Owing to the fact that this formula assumes grades of equal size, the results which it gives can be only approximate.¹ But even this approximation shows clearly that the school of fewer than twenty-five pupils per grade can attain recitation classes of standard size only by a serious sacrifice of its grade unity. The schools here studied have for the most part relied on double rather than triple grade-combinations, owing doubtless not merely to the teaching difficulties presented by three grades in a single class, but to the abnormally large class-groups resulting from such combination. Where combinations of more than two grades occur, they are generally found in either music or physical training; though the customary segregation of boys and girls in the latter subject frequently produces classes smaller than those resulting from double grade-combinations. With the exception of Tarbell, one school only (Gordon) has devoted as much as one-fourth its required program to combined classes. Most of the other schools give to such classes from one-sixth to one-eighth of the total number of required class-hours. As they are at present organized, that is to say, these schools have preferred abnormally small classes, with a resulting sacrifice of economy, to the disadvantages entailed by an extensive combination of grades.

Effects of Grade-Combinations on Teaching. — The nature of the disadvantages resulting from combination becomes evident when we consider the probable influence of such combination upon the effectiveness of teaching in the various required subjects. There is little question that certain of the groupings are relatively desirable. The large groups in music probably lend themselves almost as readily to the teaching of musical appreciation, and far more readily to choral work, than would separate classes organized within the grades. In physical training, also, large-group participation offers definite advantages in the conduct of certain games and sports, though the grouping of pupils of widely diverse ages and states of physical development may prove a serious handicap. Combination of grades in subjects demanding individual rather than group work on the part of pupils — penmanship, drawing, spelling — may perhaps be achieved without serious

¹ See footnote, page 29.

loss in the school enrolling fifteen pupils per grade, or fewer. For such subjects this would seem to be especially true in view of the extensive overlapping in individual attainments commonly found between successive grades.¹ But combined classes in other required subjects — science, the social studies, English — would seem to offer great disadvantages from the point of view of effective instruction, in the wide range of maturity, interests, and ability of the pupils included.

Combinations in Schools of Various Sizes. — The figures given in Table V, together with the practice in the schools here studied, would indicate that combination of grades in the small school can hardly be restricted to the subjects best adapted to such organization. In schools enrolling over twelve pupils per grade, triple grade-combinations produce classes so large as to be impracticable for subjects other than music and physical training. The extent to which triple combinations in the latter subjects will make unnecessary double combinations in other work will of course be dependent not merely on the enrollment of the school but on the time-allotment of the classes involved. Assuming approximately the time-allotments found in the schools visited, and the customary segregation of boys and girls in physical training,² it is doubtful that the school of fewer than twenty-two pupils per grade can achieve the standard class-enrollment by combination in these subjects alone. Schools enrolling less than this number of pupils will in most cases be obliged to rely on additional double combinations in subjects not as well adapted, or seriously ill-adapted, to combined groupings. For those of between seventeen and twenty-two pupils per grade, such combinations will produce classes enrolling more than the desirable maximum of thirty-five pupils; so that the resulting teaching situations will involve not merely a wide range of individual differences, but an unduly large group of pupils. Schools enrolling between thirteen and seventeen pupils per grade must depend to a very considerable

¹ Cf. Kruse, Paul: *The Overlapping of Attainments in Certain Grades*. Teachers College, Columbia University, New York, 1918.

² Which means that even with triple combinations enrollment in physical training classes will average only one and one-half times the average grade enrollment.

extent on undesirable combinations. And schools of fewer than thirteen pupils per grade, even though they may substitute triple combinations for the double combinations employed by larger schools, will find the attainment of the standard to mean the placing of at least half their work on a combination basis. In any school enrolling fewer than twenty-two pupils per grade, therefore, achievement of an average enrollment of twenty-five pupils in required classes demands the creation of teaching situations so unfavorable as to throw grave doubt upon the wisdom of an attempt to reach the standard.

General Conclusions. — So far as concerns classification of pupils in the required work of the small junior high school, we may thus set forth the following general conclusions :

1. Grouping of pupils according to ability or according to vocational specialization is economically impracticable in the school enrolling fewer than fifty pupils per grade — that is, in the two-year school enrolling fewer than 100 pupils, and in the three-year school enrolling fewer than 150 pupils.

2. The teaching of each grade wholly as a separate unit is economically possible only in schools enrolling at least twenty-five pupils per grade. In two-year schools of fewer than 50 pupils, and in three-year schools of fewer than 75 pupils, grade-distinctions must be broken down in at least a part of the work if the accepted standard of enrollment is to be maintained.

3. Grade-combinations in certain subjects will provide a practicable remedy for small grade-enrollments in schools of approximately twenty-two pupils per grade or more — that is, for two-year schools enrolling between 45 and 50 pupils, and for three-year schools enrolling between 65 and 75 pupils.

4. Though certain grade-combinations will prove advantageous in schools of fewer than twenty-two pupils per grade, attempts to achieve a normal average of class enrollments in such schools are likely to result in highly undesirable teaching situations. Two-year schools of fewer than 45 pupils, that is to say, and three-year schools of fewer than 65 pupils, should expect even in required subjects average class-enrollments considerably below the normal.

As applied to the small Massachusetts junior high schools, these conclusions indicate that

1. Consistent grouping of pupils according to ability or according to vocational specialization, even though but two groups are formed in each grade, is economically possible in only one of the schools under consideration.

2. The teaching of each grade wholly as a separate unit is economically possible in seven of the nineteen schools.

3. Of the remaining twelve schools, three have enrollments large enough to permit attainment of a normal average in required subjects by judicious grade-combinations. Two of these schools have made fairly extensive use of such combinations.

4. Nine schools are so small that they cannot attain a normal average of enrollments even in required classes without creating highly undesirable teaching situations. Four of the schools have permitted such situations for the sake of economy; the other five have allowed their class-enrollments to remain far below the standard.

CHAPTER IV

DIFFICULTIES DUE TO ENROLLMENT

B. THE OFFERING OF ELECTIVES

EVEN more pronounced than in the organization of required classes are the limitations imposed by small enrollment upon the offering of electives. The fact that a certain class is elective obviously means, under the usual type of organization, that its enrollment will be less than that of required classes. To the school which finds difficulty in attaining a normal average of enrollments even in required work, the offering of electives thus presents a serious problem.

Organization of elective classes may be accomplished on the basis either of unrestricted election or of alternative election. Under the plan of unrestricted election each elective is so placed in the time-schedule as to be open to every pupil in the grade for which it is planned, no matter what other electives he may choose. Failure to elect a given class therefore means that a pupil uses for study the periods during which that class meets. Under the plan of alternative election each pupil chooses one of two or more classes meeting in the same class-periods,¹ so that only part of the elective program is open to any one pupil. Failure to make any election from a group of classes provides added study-periods for the pupil concerned; but a program of alternative election is ordinarily so arranged that every pupil will find it desirable to elect one or another of the classes in each group.

Unrestricted Election. — The advantages of the plan of unrestricted election are to be found in the freedom which it gives each pupil to select any and all of those classes best adapted to his individual needs. Ideally considered, only a plan of unrestricted

¹ It is to be noted that the term "alternative election" is here used to indicate choice of one from any number of elective classes meeting at the same hours. "One-out-of-two election" (or "paired election") and "one-out-of-three election" will later be used to denote the two most common types of alternative election.

election can make possible for each pupil the various combinations of courses which may be desirable. But from the practical standpoint the large number of courses necessary to provide adequately for individual differences in interests, aptitudes, and educational objectives makes impossible any large measure of adherence to this plan. Completely unrestricted election means necessarily a curtailment either of the number of electives offered, or of the required program, or of both.

Alternative Election. — The plan of alternative election makes it possible, without curtailment of the required program, to offer double or triple the number of electives provided under the plan of unrestricted election, according to the number of classes included in each elective group. This plan is therefore universally found (though with various modifications) in junior high schools which are attempting broad programs of elective offerings. Its importance is such as to merit careful attention to the limitations which a small enrollment places upon its use.

Strict adherence to a plan of alternative election makes possible accurate prediction of the average enrollment in elective classes. Assuming for each pupil the same class-load in terms of hours per week, it is apparent that provision within a single grade for election on a one-out-of-two basis (that is, choice of one elective from each group of two meeting at the same periods) will mean an average enrollment in elective classes equal to one-half the total grade enrollment. Knowlton, for example, with an enrollment of thirty pupils in the eighth grade, may expect from this grade paired elective classes averaging only fifteen pupils each. If election is to be made possible on a one-out-of-three basis, then elective classes may be expected to average only one-third the number of pupils found in the grade as a whole. Hence if any electives whatever are to be offered in a single grade, the enrollment of the grade must be well above twenty-five in order that the required classes may balance the elective classes to provide an average membership as high as the standard.

The effects of alternative election differ markedly between schools enrolling more than one section in each grade, and schools in which each grade forms an undivided unit in required subjects.

Plans of alternative election in schools of each type need, therefore, to be considered separately.

*1. Alternative Election in Schools Enrolling More Than One
Section in Each Grade*

In schools large enough to divide each grade into two or more recitation-groups (of which Arnold and Quentin are examples¹), the problem of maintaining in elective classes an average enrollment at least as high as that in required classes is at first sight a relatively simple one. Assuming two sections in each grade, pupils from both sections may be combined on the one-out-of-two basis in single elective classes, in which the average enrollment will be half that of the grade as a whole. Though there will be a re-distribution of pupils, each pair of elective classes will correspond in size to the two grade-sections from which they were formed. Hence in grades thus divided it is theoretically possible to offer electives in unlimited number, provided the one-out-of-two basis of election is maintained, without affecting in any way the average enrollment established by the ordinary classes. For schools enrolling three class-sections in a grade, election may be similarly provided on the one-out-of-three basis without affecting the average enrollment.

Differences in Size of Elective Classes. — The attempt to put this type of class-organization into practice, however, brings to light important limitations arising from the differences in size of elective classes. A given school organizing its work on the one-out-of-two basis may as a rule find its classes in commercial arithmetic, for example, to average two-thirds the total grade-enrollment, while its algebra classes average only one-third; another may enroll three-fourths its pupils in Latin and but one-fourth in ninth-grade practical arts. Such differences in size are the result of a number of factors. In very large schools, the size of each elective group will be determined with relative constancy by the type of pupils forming the school population, the needs of the community of which they are members, and the nature of the guidance offered by the school. In the very small school these

¹ See Table III.

more or less tangible factors are likely to be obscured by chance variations in the make-up of the grades from which the elective groups are drawn.

The resulting variation in the relative size of elective classes (which occurs, of course, whatever the number of sections in each grade) is clearly illustrated in the fourteen small schools offering two or more electives in a single grade.¹ The median number of electives in each grade and the median ratios between enrollment in these electives and grade membership are as follows:

TABLE VI

RATIOS BETWEEN ENROLLMENT IN ELECTIVE CLASSES AND GRADE MEMBERSHIP

	MEDIAN NUMBER OF ELECTIVES	MEDIAN RATIO, LARGEST ENROLLMENT	MEDIAN RATIO, SMALLEST ENROLLMENT	MEDIAN RATIO, AVERAGE ENROLLMENT
Grade VII (3 schools)	2	.6	.4	.5
Grade VIII ² (6 schools)	3	.7	.4	.5
Grade IX ² (14 schools)	7	.8	.2	.5

It is to be noted not merely that there is a considerable variation between enrollments in elective classes in any one grade, but that the variation in size tends to increase as the number of elective subjects grows. A school allowing choice from a group of six or eight subjects, that is to say, must expect greater range in the relative size of classes than one offering choice from only three or four subjects. As gradual increase in election is made possible, we must therefore expect an increasingly greater number both of relatively large and of relatively small elective groups.

Effects of Differences in Enrollment on Offering of Electives. — But the maintenance in elective classes of enrollments as large as the average enrollments in required classes is possible, on the basis which we have suggested, only if elective classes may be taught without being divided into sections. Variation in the size of such classes, whether produced by chance or by certain constant fac-

¹ Oakwood, Parker, Quentin, Selden, and Tarbell are not included — the latter because of its exceptional organization.

² For the eighth and ninth grades the medians here given are also in each case the modes.

tors, may result in the formation of groups too large to admit satisfactory teaching without division. This is likely to be true especially of practical arts and laboratory subjects, in which the amount of equipment available places a very definite limit upon the practicable size of class-groups; but it will be true also, in frequent instances, of classes in the more academic subjects. The probability of occurrence of over-large classes increases, as we have shown, with each increase in the school's offering of electives. It obviously becomes greater, moreover, the larger the total grade-group from which the elective classes are drawn. The necessary division of such classes destroys the balance between large and small groups, producing an average enrollment below that of the grade-sections.

The general average resulting from such division will not, however, necessarily fall below the standard for class-enrollments, unless the average enrollment in required classes is already below that standard or only equal to it. For the school which has an average of over twenty-five pupils in each of its required classes, opportunity for division of elective classes is provided in proportion to its enrollment. The larger the school, the greater the possibility of compensation for necessary division of elective groups, until, with an enrollment of thirty pupils or more in each grade-section, we find a very considerable measure of freedom (assuming adequate teaching staff and equipment) in provision of electives on the alternative basis.¹ It is only as its enrollment in required classes is below or barely above the standard, therefore, that a school suffers from division of elective groups.

¹ Assuming an average enrollment of 30 pupils in required classes, the school of 60 pupils per grade may place one-half its work on the paired elective basis, providing three sections for each pair of electives, without reducing its average enrollment in all classes below 25. Under similar conditions the school of 90 pupils per grade may place five-twelfths of its work on the one-out-of-three basis, providing five sections for each group of three electives, without causing its average enrollment to fall below the standard. (These figures are computed by the use of formulæ similar to those presented in Section 2 of this chapter.) All of the remaining work may, in each case, be organized on the basis of two or three sections, respectively, for each group of electives, without lowering the average. Raising of the average enrollment in required classes by combination of sections or grades will of course afford increased opportunity for division of elective classes.

Hence we may conclude that in the three-year junior high school of 150 pupils or more, or in the two-year school of 100 pupils or more, the provision of any desired number of electives on the one-out-of-two basis can in general be economically accomplished without serious administrative difficulties. Should the size of certain elective classes make sub-division necessary, combination of sections or of grades in certain required subjects will provide the necessary compensation for small elective enrollments. Election on the one-out-of-three basis may be provided, under similar conditions, by the three-year school of 225 pupils or more, and by the two-year school of 150 pupils or more.

One-out-of-Three Election in Schools of Two Sections Per Grade.

— These estimates apply, it is to be noted, only to schools which determine the basis of election which they shall adopt (that is, one-out-of-two or one-out-of-three election) strictly in terms of the number of sections in each grade. Should a school enrolling only two sections in a given grade attempt to provide one-out-of-three election within this grade, additional complications arise. The effect of such elections is the same as that of dividing over-large elective classes on the paired-elective basis; so that the school's enrollment in required subjects must be above the standard if a normal average is to be maintained. The school enrolling two sections in each grade, with an average of twenty-eight pupils per section, could organize one-third of its program (one-seventh of the work of each pupil¹) on this basis without reducing its average class-enrollment below twenty-five. In the three-year school this would mean a maximum of less than thirteen weekly periods chosen by each pupil on the one-out-of-three basis, during the whole course of ninety periods; in the two-year school, it would mean a maximum of less than nine weekly periods so chosen from a total of sixty periods. Since these periods must include also the divided classes which may occur in paired-elective groups (unless these are counterbalanced by combinations in required subjects), it is doubtful that a smaller enrollment would allow any considerable amount of election on this basis. It may be assumed, therefore, that for the three-year school which sec-

¹ See formulæ, page 48.

tions its grades in required subjects no substantial program of electives is economically possible on the one-out-of-three basis with a total enrollment of less than 165. For the two-year school which sections its grades, a similar program will demand a total enrollment of at least 110 pupils.¹

An even more serious problem presents itself in the school which sections only one or two of its grades — Eastwood, for example. Except in the divided grade, provision of electives on the single-grade basis is attended with the same difficulties as those of the school enrolling thirty-five pupils or fewer in each grade; and the necessary sectioning of certain grades may — as in the case of Eastwood — prove as much a handicap as an advantage. Practice in schools of this type will therefore be considered in connection with the offering of electives in the smaller schools.

There remain to be considered those schools which divide all their grades, but which have average enrollments of fewer than twenty-five pupils in each grade-section. Such schools (of which Harlow provides an example) may compensate in part for their small elective classes by grade- or section-combinations in required subjects. They can rarely compensate in this manner, however, for the necessary sub-division of over-large elective classes, should these occur. If the need for economy is pressing they are in general obliged to adopt one or both of two further methods for meeting this difficulty.

Remedies for Sub-Division of Elective Groups. — One of these consists in the abandonment of very small elective classes and the assignment of pupils choosing such classes to study-periods at the backs of recitation rooms. This method demands, in effect, the partial substitution for the alternative plan of election, of unrestricted election for those pupils who chance to be in the majority. The result of its use is a raising of the average enrollment in electives above that which is found when alternative

¹ These estimates assume that election on the one-out-of-three basis will be found, if at all, in the upper grades. If these grades are divided into two sections, then the earlier grades may be expected to enroll at least two sections each; so that the minimum number of sections for the three-year school will be six, and for the two-year school, four.

election is strictly adhered to. The second method consists in the guidance of pupils in their choice of electives in such manner as to produce more even distribution between classes. This would seem on the surface — and may, indeed, prove to be — a perversion of the school's system of guidance. Yet it is undoubtedly true that for many junior high school pupils choice of one elective will frequently be to all practical intents quite as valuable as choice of another (always assuming that the pupil makes this choice his own); so that there is possibly a limited opportunity for adjustment in this direction. Both these plans obviously involve serious danger of the subordination of pupils' needs to the immediate exigencies of school organization. In this respect they indicate very clearly the difficulties which the junior high school of limited enrollment must face.

General Conclusions. — Summarizing our conclusions in terms of schools of various sizes, we find that

1. The three-year school of more than 165 pupils, or the two-year school of more than 110 pupils, may plan, so far as concerns class-enrollments, to inaugurate economically any desired program of election on the paired-elective basis, together with a limited program of election on the one-out-of-three basis.

2. The three-year school of between 150 and 165 pupils, or the two-year school of between 100 and 110 pupils, may offer economically any desired program of election on the paired-elective basis. It cannot, however, expect to provide economically any substantial program of election on the one-out-of-three basis; and it may be obliged to fall back upon a limited number of grade- or section-combinations to compensate for the necessary sub-division of over-large elective groups.

3. The three-year school of between 110 and 150 pupils, or the two-year school of between 75 and 100 pupils, may expect to offer any desired program of election on the paired-elective basis (assuming grade- or section-combinations in a limited number of required subjects) without reducing its average class-enrollment below its average enrollment in grade-sections. It can rarely expect, however, to attain a normal average of enrollment in all classes; and it may be forced by the need for economy to fall back upon practices which subordinate the needs of individual pupils to the exigencies of administrative organization.

Conclusions Applied to Specific Schools. — These general conclusions become more significant when we apply them to the four Massachusetts schools — Arnold, Eastwood, Harlow, and Quentin — large enough to section one or more grades in required classes. Data with respect to the elective offerings of these schools are given in Table VII.

TABLE VII

PLANS OF ELECTION AND COMBINATIONS OF ELECTIVE CLASSES IN SCHOOLS WITH SECTIONED GRADES

SCHOOLS	PLAN OF ELECTION	PROPOR. OF OFFER- INGS ELECTIVE	GRADES COM- BINED	SUBJECTS COMBINED	SIZE OF COM- BINED CLASSES	AVERAGE SIZE OF ELECTIVE CLASSES	AVERAGE SIZE OF GRADE-SECTIONS	AVERAGE SIZE OF ALL CLASSES
Arnold 6-3-3	Unrestricted	31%	9, 10 9, 10	Dom. Arts Agriculture	11 9	11.5	26.8	22.5
Eastwood 6-3-3	Unrestricted	35%	9, 10 9, 10 9-12 9-12 9, 10 9, 10	Anc. History French Drawing Mech. Draw. Biology Shopwork	25 24 11 6 23 5	16.4	21.8	21.8
Harlow 6-3	Curricula elective; unrestricted election within curricula	19% w'in cur.	None	None	—	15.2	20.5	21.4
Quentin 6-2-4	Unrestricted (Sewing only)	4%	7, 8	Sewing	60	60.0	28.8	35.0

With a total enrollment of 161 pupils, the junior high school at Arnold falls just short of the size necessary for the economical offering of a part of its elective program on the one-out-of-three basis. The school has an enrollment large enough, however, to enable it to offer all its elective work on the paired-elective basis

without reducing its average class-enrollment below the standard. Combination of grades in music, moreover, has given it an enrollment in required classes of 27.3¹ — a figure large enough to offset most, if not all, of the divisions of over-large classes which would ordinarily be necessary. Yet in actual practice the school has an enrollment in all classes averaging only 22.5 pupils.

This low average is due to the adoption of the plan of unrestricted election rather than of alternative election, coupled with a very low average enrollment (less than half a grade-section) in elective classes. The limiting effects of unrestricted election, especially upon the program of required subjects, is strikingly evident in the time-allotments of the school. In a schedule of thirty-five periods per week, seventh-grade arithmetic receives but four periods, drawing one period, practical arts one period; eighth-grade English receives four periods, social studies four periods, and practical arts one period; ninth-grade social studies receive for certain pupils only two and one-half periods, science for certain pupils two and one-half periods, manual training two periods. Even with unrestricted election, moreover, either the elective subjects are of such nature or the program required of each pupil is so limited, as to result in the enrollment of a very small number of pupils in each elective class. The combination of pupils from the ninth and tenth grades in domestic arts and in agriculture has been of little avail in raising the average of class-enrollments. The program as a whole results not merely in an uneconomical average of class-enrollments and in small time-allotments to many subjects, but in a relatively large time-allotment to unguided or superficially guided "study" in the program of each pupil.

Consistent adherence to a plan of alternative election in this school would, it is true, restrict the number of elective subjects open to each pupil. But the use of this plan, together with such organization of electives as to emphasize exploration rather than specialization, would offer a three-fold advantage: it would make possible a greater time-allotment to required subjects, it would increase the amount of guided classwork and study for each

¹ See Table IV.

pupil, and it would result in an average of class-enrollments more thoroughly defensible from the standpoint of economy.

Eastwood has likewise adopted a program of unrestricted election, slightly more extensive from the point of view of its proportionate time-allotment than that of Arnold. It has succeeded in maintaining a relatively higher average of class-enrollments, however, chiefly through its combination of the ninth and tenth grades in a number of subjects. The advantages and disadvantages of such combination will be considered in connection with smaller schools; it has been feasible in Eastwood chiefly because in this school the seventh grade only is large enough to be sectioned. The fact that Eastwood's problems are, in effect, those of the school with unsectioned grades has already been noted.

So far as its separate curricula are concerned, Harlow employs the alternative plan of election. Its organization and enrollment (123 pupils) are such as to make possible a program of election on the paired-elective basis with an average class-enrollment of at least 20.5 pupils. In spite of its offering of certain unrestricted electives within each curriculum, the combination of grades in a number of required subjects has, in fact, allowed it slightly to exceed this average.

Quentin, finally, through its offering of sewing as its only elective, through its combination of grades in that subject, and through a number of grade- and section-combinations in required subjects, has attained a class-average very much above its average enrollment in grade-sections. Its practice in these respects has been dictated almost entirely by the restrictions of physical equipment.¹ With adequate equipment and with a sufficient teaching staff its enrollment would allow the organization of a complete program of electives on the paired-elective basis.

2. Alternative Election in Schools Enrolling One Section Only in Each Grade

For schools whose enrollment is too small to justify the sectioning of grades, the extent to which electives may be offered on the alternative plan within single grades will be chiefly dependent on

¹ See Table XX.

the average grade-enrollment. Maintenance of a class-average of twenty-five means that the small elective classes must be balanced by relatively large required classes. How great a proportion of elective work may be economically introduced within single grades can be calculated with reasonable accuracy in terms of the grade enrollment.

Schools Not Combining Grades in Required Classes. — Such calculation is simplest for the school of no more than thirty-five pupils per grade, which neither combines nor subdivides its grades in required classes.¹ In such a school the average enrollment in required classes is the same as the average grade-membership. If we let A represent the average of class-enrollments in all subjects (both elective and required), X the number of hours of elective classes, T the total number of class-hours, and G the average number of pupils per grade, then for election on the one-out-of-two basis in this type of school,

$$A = \frac{X \cdot \frac{1}{2}G + (T - X) \cdot G}{T}, \text{ and } X = T \cdot \frac{2(G - A)}{G}.$$

With an average grade-membership of 30 pupils, that is to say, the elective offerings of the school may reach $\frac{2(30 - 25)}{30}$ or $\frac{1}{3}$ of the total number of class-hours without a resultant class-average below the standard of twenty-five; with a membership of 35, the amount of elective work may be increased to $\frac{4}{7}$ without departing from the standard. If the formula is similarly developed for election on the one-out-of-three basis, it will be found that $X = T \cdot \frac{3(G - A)}{2G}$. A grade-membership of 30 pupils will therefore allow elective classes on this basis to the extent of $\frac{1}{4}$ of the school's work, and a membership of 35, to the extent of $\frac{3}{7}$, without departing from the standard.

The results obtained by the application of these formulæ become more significant when they are translated into terms of the

¹ Work in practical arts, since it customarily demands the segregation of boys and girls, is here treated in all cases as an elective rather than as a required subject.

amount of elective work which can be taken by each pupil. If Y represents the proportion of each pupil's work which is elective, and Z the proportion of the total offerings of the school which are elective, it can be shown that for elections on the one-out-of-two basis $Y = \frac{Z}{2 - Z}$.¹ If one-third the work of the school is elective on this basis, each pupil may thus elect, on an average, one-fifth of all his work. If four-sevenths of the offerings are elective, the

¹ These formulæ were derived as follows: Assuming that each pupil elects one of each group of electives open to him, let T_p represent the total number of recitation-hours in each pupil's program, T_s the total number of recitation-hours offered by the school, Y the proportion of each pupil's recitation program which is elected, and Z the proportion of the total offering of the school which is elective. (Z will be in each case the multiple of T found in the formulæ presented in the preceding paragraph.) Then for election on the one-out-of-two basis, $Y \cdot T_p = \frac{Z \cdot T_s}{2}$. But $T_p = T_s - \frac{Z \cdot T_s}{2}$. Substitution of this second value for T_p in the first equation and solution of the equation give $\frac{Z}{2 - Z}$ as the value for Y . Derivation of the value for Y on the basis of one-out-of-three election follows the same steps, the two equations used being $Y \cdot T_p = \frac{Z \cdot T_s}{3}$, and $T_p = T_s - \frac{2}{3} Z \cdot T_s$.

For the type of school immediately under discussion, the results given by these Y equations may be more directly arrived at if we consider that the average class-membership is equal to $\frac{(\text{number of class periods per pupil per week}) \cdot (\text{grade enrollment})}{\text{total number of required and elective periods offered per week}}$. If the number of periods for each pupil per week is represented by P and the number of elective periods open to each pupil by X , then the total number of required periods offered will be $P - X$, and the total number of elective periods on the one-out-of-two and the one-out-of-three bases, respectively, $2 X$ and $3 X$. Using G to represent the average grade-enrollment and A to represent the average class-membership, the formula thus becomes $A = \frac{P \cdot G}{(P - X) + (2 \text{ or } 3) \cdot X}$. For one-out-of-two election, $X = P \cdot \frac{G - A}{A}$; for one-out-of-three election, $X = P \cdot \frac{G - A}{2 A}$. Substitution in these equations of the proper values for grades of 30 and 35 pupils, respectively, will give as multiples of P the Y values already found.

Though these equations are simpler both in derivation and in use than the Y equations, they are unfortunately not completely applicable to schools in which grades have been combined to form single classes in certain of the required subjects. The Y formulæ, applied to the results of equations which take into account the higher class-averages produced by combination of grades, are as valid for such schools as for schools in which each grade is maintained as a separate unit.

proportion of elective work open to the average pupil rises to two-fifths. For election on the one-out-of-three basis, $Y = \frac{Z}{3 - 2Z}$.

Hence the fact that one-fourth the school's work is elective on the one-out-of-three basis will mean for each pupil an elective program averaging one-tenth of his total program. With three-sevenths of all classes elective, each pupil will have one-fifth of his own work on an elective basis.

Limits of Election in Single Grades on Basis of Grade-Membership. — For schools of various enrollments, the proportions of the school's total offerings and of the program of each pupil which may economically be placed on a basis either of one-out-of-two or of one-out-of-three election, are as follows:

TABLE VIII

PROPORTIONS OF ELECTIVE OFFERINGS ECONOMICALLY POSSIBLE WITHIN SINGLE GRADES IN SCHOOLS ENROLLING MORE THAN TWENTY-FIVE PUPILS PER GRADE

GRADE AV'GE	PROPORTION OF ALL OFFERINGS		PROPORTION OF PUPILS' WORK		GRADE AV'GE	PROPORTION OF ALL OFFERINGS		PROPORTION OF PUPILS' WORK	
	1 : 2	1 : 3	1 : 2	1 : 3		1 : 2	1 : 3	1 : 2	1 : 3
26	.08	.06	.04	.02	31	.39	.29	.24	.12
27	.15	.11	.08	.04	32	.44	.33	.28	.14
28	.21	.16	.12	.06	33	.48	.36	.32	.16
29	.28	.21	.16	.08	34	.53	.40	.36	.18
30	.33	.25	.20	.10	35	.57	.43	.40	.20

These figures would seem to indicate that economical provision of any substantial amount of election within single grades is out of the question for the school of fewer than thirty pupils per grade. Even with an average grade-enrollment of thirty, the three-year school may hope to offer to each pupil no more than eighteen weekly periods of election on the paired-elective basis, from a total program of ninety periods during the three years; and these elective periods must include all the pupil's work in practical arts. The two-year school, organizing its electives on the same basis, may provide not more than twelve elective periods from a total of sixty. The offering within single grades of a substantial

amount of election on the one-out-of-three basis is similarly impracticable for the school which enrolls fewer than thirty-five pupils per grade; though there may perhaps be opportunity for a somewhat smaller school to combine a single group of one-out-of-three electives with a limited amount of work on the paired-elective basis.

Effects of Grade-Combinations in Required Subjects. — These statements leave out of consideration the possibility of additional compensation for small elective classes through grade-combinations in required subjects. It has already been noted, however, that relatively few grade-combinations can be effected without the creation of seriously disadvantageous teaching situations. This is especially true in the schools in which grade-averages are already twenty-five or above, and in which combination in required subjects would be of greatest effect as a means of offsetting small elective classes. In these schools such organization must be generally restricted to classes in music and physical training, since only in these classes can fifty pupils or more be effectively taught in a single group;¹ and the small time-allotment ordinarily given to these subjects means that combination will here have slight effect. The fact that of the five schools having enrollments of between twenty-five and thirty-five pupils in each grade, — Benton, Corwin, Dexter, Jackson, and Knowlton, — none has apparently been able to make use in marked degree of such combinations,² gives evidence of the lack of effectiveness of this means of raising average enrollments. The advantage which Benton and Jackson have gained through their provision of relatively light programs for upper-grade pupils³ is merely an illusory one. Its occurrence is due to the fact that the upper junior high school grades have smaller enrollments than the lower grades. But since the major number of elective offerings is found in these grades, the average enrollment in elective classes

¹ This conclusion is, of course, wholly empirical. The indeterminate nature of experimental findings with respect to optimum class-size forces us to rely almost entirely on "judgment" in this connection. Cf. Stevenson, P. R., *op. cit.*, and Davis, C. O.: "The Size of Classes and the Teaching Load," *School Review*, XXXI: 412-29, June, 1923.

² See Table IV.

³ See footnote, page 29.

will be for these schools considerably less than the estimated fraction of the average grade-enrollment; so that the effects of a light required program in the upper grades will be offset by the small enrollments in upper-grade electives. In view of all these facts it is probable that estimates based on simple grade-averages offer the surest indication of the ability of this type of school to organize alternative election within single grades.

The estimates which have been advanced, moreover, need in few cases to be revised because of the sub-division of over-large classes. Though such sub-division may in rare cases be necessary because of limited shop or laboratory equipment, the fact that each grade as a whole includes but a single class of normal size means that elective classes composed of a fraction of the pupils of the grade, if they can be provided for at all, can in general be handled without difficulty.

Schools Enrolling Fewer than Thirty Pupils per Grade. — We have considered thus far only schools having an average enrollment of twenty-six pupils or more per grade. Of the schools of this size, it has been shown that those enrolling fewer than thirty pupils per grade cannot economically make any substantial offering of alternative electives within single grades. Schools of fewer than twenty-six pupils per grade can in general make no such offerings whatever, without reducing their average class-membership below the standard. Provision of an adequate offering of electives according to the plan usual in large schools therefore becomes, in any school enrolling fewer than thirty pupils per grade, an exceedingly difficult problem.

Combination of Grades in Elective Classes. — Economical solution of this problem demands the abandonment of single-grade electives, and the organization of elective classes combining pupils from two or more grades, according to the scheme already noted in required-subject combinations. Whether in required classes or in electives, such combination necessitates the alternating of subject matter from year to year. In the case of elective classes alternation may be made between two electives or between different topics in the same elective. An example of the first type is the offering of general shopwork for boys of both the

seventh and the eighth grades in one year, and the provision of general agriculture for both grades in the following year. The second type is illustrated by the division of the course in domestic science into two parts, one emphasizing cooking and general problems of home management, and the other treating home decoration, sewing, and design, each being offered in alternate years for pupils of two grades.

Effect on Size of Elective Classes. — As it affects size of elective classes, consistent use of this plan results in a situation parallel to that of the school enrolling two or more sections in a single grade. So long as no elective groups are too large to be taught as single classes, the average enrollment in electives will be the same as the average in the required classes of the grades from which the elective groups are drawn. Where the size of resulting elective classes does require the formation of two sections instead of one, compensation must be sought chiefly in combination of grades in required subjects; though for the school of between twenty-five and thirty pupils per grade a limited degree of compensation is possible through the above-standard enrollment in all required classes.

Disadvantages of Grade-Combination. — The disadvantage which this plan presents in the teaching problems offered by classes containing pupils of widely varying maturity and school experience is too obvious to need special comment. It has the further drawback that with increasing dependence upon it there is likely to be a tendency toward over-specialization or toward virtual requirement, rather than election, of much of the work thus organized. Its use prevents, moreover, a thoroughly consistent sequence of subject matter — especially in classwork such as the study of foreign language, in which elementary progress is necessarily cumulative. With a frequently changing staff of teachers and school officers these disadvantages are enhanced by the fact that the plan demands organization of subject matter for at least two years in advance. But for all its unfavorable qualities, it offers the only means by which the very small school can offer with reasonable economy an elective program corresponding in organization to that of the large system.

Grades to be Combined. — The method of effecting the combination and alternation necessary under this plan must differ with the grade-organization of the school concerned. In the two-year school including the seventh and eighth grades, the program of electives must of course embrace both these grades. So far as class-enrollments alone are concerned, the three-year school of seventy pupils or fewer may conceivably arrange many of its electives for combined classes of pupils from all three grades. The obvious disadvantages of such an arrangement from the standpoint of the usual methods of class-teaching are so great, however, that the three-year school will ordinarily be content with two-grade combinations. As a means of providing a relatively gradual introduction of elective work, it will therefore seek combination of certain electives between the seventh and eighth grades, and of others (probably more in number) between the eighth and ninth grades. The school in which combination will make possible the nearest approach to the usual practice in gradually increasing election will of course be the four- or six-year high school, since there is here the possibility of pairing the ninth and tenth as well as the earlier grades.

It is to be noted that no practicable plan of elective combinations will ordinarily enable the school enrolling a single section in each grade to attain the standard of average class-enrollments, unless the enrollment in grade-sections already reaches or surpasses that standard. With precautions for insuring the formation of no elective groups too large to be taught as single classes, and with combinations of required classes to balance electives which cannot be subjected to grade-combination, such a school may usually hope for an average class-enrollment approximately equal to its average grade-enrollment. But for the school of fewer than thirty pupils per grade the attainment of even this average must frequently mean the creation of disadvantageous teaching situations.

Summary. — Our consideration of schools too small to section their grades has shown, in brief, that a substantial program of alternative election within single grades is economically possible only in schools of thirty or more pupils per grade, and that the

TABLE IX

PLANS OF ELECTION AND COMBINATIONS OF ELECTIVE CLASSES IN SCHOOLS WITH
UNSECTIONED GRADES

SCHOOLS	PLAN OF ELECTION	PROPOR. OF OFFER- INGS ELECTIVE	GRADES COM- BINED	SUBJECTS COMBINED	SIZE OF COM- BINED CLASSES	AVERAGE SIZE OF ELECTIVE CLASSES	AVERAGE SIZE OF GRADE-SECTIONS	AVERAGE SIZE OF ALL CLASSES
Benton 6-3-3	Unrestricted	41%	9, 10 9-12 8, 9 9-12 8, 9 9-12	Algebra Anc. History Latin Biology Bus. Pract. Typewriting	17 28 22 38 41 17	25.0	31.5	31.2
Corwin 6-3-3	Unrestricted	22%	None	None	—	14.9	29.7	25.0
Dexter 6-3-3	Alt. and Unrestricted	53%	9-12 9-12	Music Drawing	15 12	12.4	29.7	20.7
Fremont 6-3-3	Alternative	43%	7-12	Penmanship	45	18.2	23.7	23.7
Gordon 6-3-3	Unrestricted	48%	9-12	Music	24	9.4	19.7	16.3
Jackson 6-3	Alternative	53%	None	None	—	12.6	25.7	20.0
Knowlton 6-3	Unrestricted	25%	6, 7 6, 7 6, 7	Mech. Draw'g Sewing Basketry	7 17 16	12.3	25.3	22.2
Lundy 6-3	Alternative	15%	8, 9 8, 9	Shopwork Sewing	16 22	13.6	22.3	22.2
Mason 6-3	Unrestricted (exc. M. Tr. and Dom. Sci.)	37%	None	None	—	14.2	20.7	19.2
Nestor 6-3	Altern. and Unrestricted	37%	7, 8, 9	Drawing (elective in grade 9)	46	7.7	15.3	13.4
Oakwood 6-3	Altern. (M. Tr. and D. S. only)	10%	None	None	—	7.6	15.0	17.3

TABLE IX (Continued)

PLANS OF ELECTION AND COMBINATIONS OF ELECTIVE CLASSES IN SCHOOLS WITH
UNSECTIONED GRADES

SCHOOLS	PLAN OF ELECTION	PROPORTION OFFERING ELECTIVE	GRADES COMBINED	SUBJECTS COMBINED	SIZE OF COMBINED CLASSES	AVERAGE SIZE OF ELECTIVE CLASSES	AVERAGE SIZE OF GRADE-SECTIONS	AVERAGE SIZE OF ALL CLASSES
Raleigh 6-2-4	Unrestricted	39%	7, 9, 10	French	9	16.2	21.0	20.3
Selden 6-2	Unrestricted (Latin only)	5%	None	None	—	2.0	11.5	12.8
Tarbell 6-4	Unrestricted	35%	7, 8 9, 10 7, 8 9, 10 7-10	Com. Arith. Com. Geog. Latin Latin Agriculture (required in 7 and 8)	5 4 8 5 19	5.4	6.8	11.1
Number of schools making each subject-combination (including schools listed in Table IV)				Domestic Science	4	Algebra	1	
				Drawing	3	Basketry	1	
				Agriculture	2	Business Practice	1	
				Ancient History	2	Commercial Arith.	1	
				French	2	Commercial Geog.	1	
				Biology	2	Penmanship	1	
				Mech. Drawing	2	Shopwork	1	
				Music	2	Typewriting	1	
				Latin	2			

school of fewer than thirty pupils per grade must ordinarily combine pupils from two grades in as many as possible of its elective classes in order to provide such a program. The actual practice in these respects of the small Massachusetts schools is indicated in Table IX.

Practice in Massachusetts Schools. — Three of these schools — Benton, Corwin, and Dexter — have enrollments of approximately thirty or more pupils per grade. Of the three, Dexter alone has made use of the plan of alternative election; its provision for one-out-of-two election in the ninth grade has resulted in the placing of more than half the work of the junior high school on

an elective basis. Reference to the figures presented in Table VIII shows that a school of Dexter's enrollment can expect to place only one-third of its work on a basis of alternative election without reducing its average class-enrollment below the standard. That provision of electives in Dexter has been too extensive to allow economical organization of all classes, in spite of combination of grades in music and drawing, is shown by the fact that its average class-enrollment is only 20.7. This is in part accounted for, however, by the necessary sectioning of classes in seventh-grade shopwork and in seventh-, eighth-, and ninth-grade domestic science.

Benton and Corwin have both adopted the plan of unrestricted election, so administered as to maintain an economical average of class-enrollments. Through the use of this plan and through grade-combinations in elective classes Benton has been able to offer a slightly greater proportion of elective work, and a much greater opportunity for election on the part of each pupil, than would have been possible on the alternative basis.¹ Corwin, however, provides an elective program only two-thirds as extensive as might have been expected on an alternative basis. As between the two schools the use of grade-combinations is apparently of greatest significance in accounting for the difference in elective offerings and in average enrollments. With combinations in six of its elective classes, as contrasted with none in Corwin, Benton offers nearly twice the proportion of elective work provided by Corwin, and maintains an average enrollment in elective classes far higher than that of the latter school. The size of the combined classes provided in Benton must, however, be given due consideration. In two subjects — biology and business practice — the class enrollments are such as to call in question the wisdom of the grade-combinations. Though such com-

¹ According to the figures presented in Table VIII, a school enrolling an average of 31 pupils in each grade may expect to offer .39 of its program on the basis of alternative election, thus allowing each pupil to elect .29 of his work. With unrestricted election Benton increases each of these proportions to .41.

The effect of a plan of unrestricted election in increasing or decreasing the proportions of elective offerings possible with alternative election is discussed in detail in Section 3 of this chapter.

binaions have done much to produce an economical average of class-enrollments, they have obviously resulted in a grave sacrifice of favorable teaching conditions.

Of the eleven ¹ remaining schools, none is large enough to offer economically a substantial program of election without resort to combination of grades. Four of these schools — Jackson, Mason, Oakwood, and Selden — have failed to make use of grade-combinations in elective classes. Oakwood and Selden have sought compensation by reducing their elective offerings to one or two subjects only; Jackson has courageously persisted in presenting more than half its work on a basis of alternative election in single grades, with a corresponding reduction in its average class-enrollment; and Mason has taken refuge in a system of unrestricted election which insures the enrollment of more than half the pupils of a given grade in all but one or two of the elective classes for that grade.

The other schools have made appreciable use of grade-combinations. Fremont and Lundy alone have organized their electives consistently on the alternative basis; their grade-combinations in electives, together with similar combinations in required classes, have given them average class-enrollments almost exactly equal to their average grade-enrollments. The remaining schools have either combined unrestricted with alternative election, as in the case of Nestor, or adopted unrestricted election only. In no case have they succeeded in attaining an average class-enrollment as high as their average enrollments in grade-sections.²

Tabulation of the elective classes in which grade-combinations have been made shows a surprising range in subjects represented. There is here far less agreement among the schools than in the required-subject combinations previously noted. That grade-combinations have for the most part been arranged in subjects ordinarily assigned to the ninth grade is to be expected, in view both of the larger elective programs in the upper grades and of

¹ Parker offers no elective work, and is therefore not represented in Table IX.

² Strictly speaking, Tarbell offers an exception to this statement. But since each of its class-groups is, in effect, a combination of two grades, its average enrollment in grade-sections should be considered 13.5 instead of 6.8.

the possibility of combinations with higher grades in six-year schools. The relative infrequency with which many of the lower-grade combinations have been used, however, suggests that the very small schools have overlooked an important source of economy in this quarter.

3. *Unrestricted Election versus Alternative Election*

Comparison of the plans of unrestricted election and of alternative election has shown the advantage of the latter with respect to the offering of a broad program of elective work.¹ Yet of the eighteen schools which provide opportunity for election, eleven have adopted the plan of unrestricted election as the basis of their elective offerings.² It seems desirable, therefore, to consider more fully the implications of this type of organization.

Advantages of a Plan of Unrestricted Election. — The special arguments in favor of unrestricted election in the small school would seem to be four. First, the pairing of elective offerings in such a way as to leave opportunity for varied combinations of subjects is a difficult matter. Particularly is this true in the school in which elective courses must necessarily be few in number, and therefore less sharply differentiated than in the large school. Second, unrestricted election is easier to arrange than alternative election in the mechanical process of schedule-making. Third, the plan of unrestricted election makes possible the limiting of elective classes to those which will enroll a relatively large number of students. With such limitation average enrollment in elective classes may be expected, in the school enrolling but one class-section in each grade, to fall well above half the average grade-membership. Finally, unrestricted election may be so organized as to free certain teachers for non-teaching duties.

¹ See pages 36-37 and 44-46.

² This statement is based upon data received from the schools concerning paired recitation-classes alone, and not concerning recitation-classes paired with supervised- or directed-study classes. The latter plan is in effect quite as truly one of alternative election as the former, so far as administrative organization and teaching costs are concerned. Were information available upon such groupings, it is probable that the number of schools apparently adopting unrestricted election alone would be somewhat reduced.

Pupils who have not chosen a given elective class will frequently be few in number, so that they may readily be assigned to study-periods in the rear seats of recitation-rooms. Hence the teachers who would be responsible for their instruction under a plan of alternative election may find their burden of teaching and study-supervision somewhat lightened.

Which of these arguments have been responsible for the adoption of the plan of unrestricted election in nearly two-thirds of the small schools under consideration, there is no sure means of knowing. It is probable, however, that the possibility of raising average enrollments through the abandonment of small classes has had great weight in a number of cases. Whether premeditated or not, the effect of unrestricted election in this direction is readily apparent in the average elective enrollments of Benton, Mason, and Raleigh.¹

Disadvantages of a Plan of Unrestricted Election. — Against these arguments, however, should be weighed at least two others, in addition to that already suggested in our general comparison of unrestricted and alternative election. First, the relegation to unsupervised study-groups of those pupils who do not elect certain classes is highly undesirable from the standpoint of sound educational practice. The whole question of supervised or directed study versus unsupervised study is of course involved in this point. Second, the higher average of elective enrollments attainable under the plan of unrestricted election offers a constant temptation to abandon small classes, however great the educational need for such classes may be. The small school must of course set a reasonable lower limit upon the size of classes it can afford to maintain; but it should never allow itself to abolish courses which are essential to the education of a minority of its students merely because the needs or interests of the majority point elsewhere.

Alternative Election to be Preferred. — For each of these objections to the plan of unrestricted election, consistent election on the alternative basis offers a remedy. It provides, in the first place, a full schedule of classwork or directed study for every

¹ See Table IX.

pupil, whatever his course of study. In the second place, its balancing of large classes against small means a constant average of class-enrollments, which can be determined and provided for in advance, and which does away in considerable measure with the need for eliminating very small classes. That alternative election should be adhered to without exception, it would of course be folly to maintain. Instances will arise in which a school's equipment, or the size of its faculty, or the needs of individual pupils, would make such adherence highly disadvantageous. But from the standpoint of pupil needs alternative election would seem as a general plan to offer the most desirable type of elective class-organization for the small junior high school as well as the large.

General Summary. — By way of summary there is offered below a recapitulation of conclusions advanced at various points in this chapter. The statement of these conclusions in terms of total enrollments suggests, perhaps, a degree of absolute exactness which they cannot always possess. Detailed examination has already shown that in the case of a school (such as Eastwood, for example) in which the distribution of pupils among the grades is for some reason abnormal, the conclusions here presented may not be true in every particular. They must be interpreted, therefore, as generalizations which may be expected to apply in the large majority of cases, but to which occasional exceptions will be found.

- I. For the small junior high school as well as the large, organization of elective classes may best be established on a basis which provides for alternative choice.
- II. The economical offering of a program of electives within single grades is possible only to the school enrolling (a) 50 pupils or more per grade, or (b) between 30 and 35 pupils per grade.
 1. *Schools enrolling more than 55 pupils per grade:* With adequate teaching staff and equipment, the three-year school of more than 165 pupils, or the two-year school of more than 110 pupils, may expect to inaugurate economically any desired program of election on a paired-elective basis, together with a limited program of election on the one-out-of-three basis.

2. *Schools enrolling from 50 to 55 pupils per grade:* The three-year school of between 150 and 165 pupils, or the two-year school of between 100 and 110 pupils, may offer economically any desired program on the paired-elective basis. It cannot, however, expect to provide economically any substantial program of election on the one-out-of-three basis; and it may be obliged to fall back upon a limited number of grade- or section-combinations to compensate for the necessary sub-division of over-large elective groups.
3. *Schools enrolling from 30 to 35 pupils per grade:* The three-year school of between 90 and 110 pupils, or the two-year school of between 60 and 75 pupils, may expect to offer one-third or more of its work on a paired-elective basis without reducing its average class-enrollment below the standard.

III. Schools enrolling fewer than 30 pupils per grade must resort to combination of grades in elective classes or required classes or both, in order to maintain an economical average of class-enrollments. Such schools will find the combined junior-senior high school organization of definite advantage in the provision of suitable grade-combinations.

1. *Schools enrolling from 25 to 30 pupils per grade:* The three-year school of between 75 and 90 pupils, and the two-year school of between 50 and 60 pupils, may expect to offer economically any desired program of election on the paired-elective basis, so long as elective classes are composed of pupils from at least two grades.

IV. Schools enrolling fewer than 25 pupils per grade or grade-section cannot offer any substantial program of election with the expectation of attaining an economical average of class-enrollments. Through combination of grades in recitation-classes they may, however, attain an average class-enrollment approximately as high as their average grade or grade-section enrollment.

1. *Schools enrolling fewer than 50 pupils per grade, and compelled to section their grade-groups in recitation classes:* The three-year school of between 110 and 150 pupils, or the two-year school of between 75 and 100 pupils, may expect to offer any desired program of election on the paired-elective basis (assuming grade- or section-combinations in a limited number of required subjects) without reducing its average class-enrollment below its average enrollment in grade-sections. It can rarely expect, however, to attain a normal average of enrollment in all classes; and it

may be forced by the need for economy to fall back upon practices which subordinate the needs of individual pupils to the exigencies of administrative organization.

2. *Schools enrolling fewer than 25 pupils per grade:* The three-year school enrolling fewer than 75 pupils, or the two-year school enrolling fewer than 50 pupils, cannot ordinarily expect to maintain an economical average of class-enrollments if it attempts the offering of any substantial program of electives. Its average class-enrollment will in general be no higher than its average grade-enrollment.

It should perhaps be emphasized, in connection with the school too small to attain a normal average of class-enrollments, that skillful organization of required and elective classes will in every ordinary case make possible an average class-enrollment approximately as high as the average grade-enrollment.

Generalizations regarding the small Massachusetts schools as a group cannot be as readily offered. From the data presented in Tables VII and IX, it is difficult to avoid the conclusion that no well-thought-out plan of organization has been operative in many of these schools. Not merely are grade-combinations less used than the need for economy would seem to demand, but the plans and proportions of election adopted, and the widely varying class-averages resulting, would seem to indicate in many cases a hit-or-miss program of elective offerings rather than one based on careful consideration of the various factors involved. Handicaps arising from inadequate buildings, equipment, and teaching staff are of course responsible for much apparently undesirable procedure. But that such handicaps are the sole cause of the wide variations in economy which occur even among schools of approximately the same size, is hard to believe.

CHAPTER V

DIFFICULTIES DUE TO ENROLLMENT

C. THE PROVISION OF EXTRA-CURRICULAR ACTIVITIES

THE limitations placed by small enrollment upon the provision of extra-curricular activities can be defined only in general terms. The present lack of objective standards in the establishment of such activities, and the probably desirable absence of fixed types of organization, prevent the specific analysis possible in the case of traditional classroom work. The fact that complex extra-curricular programs have been attempted in relatively few of the small Massachusetts schools, moreover, makes difficult the support of general conclusions by concrete illustrations.

Scope of the Extra-Curricular Program. — As judged by current practice, a complete extra-curricular program may be expected to embrace special home-room organizations, pupil participation in certain phases of general school government, the work of various clubs (including the issuance of school publications), the extra-curricular athletics of the school, general school assemblies conducted by the pupils, certain purely social activities, and various school-and-community events in the nature of exhibitions of the school's work. With the exception of the out-of-school time devoted to athletics, social activities, and exhibitions, experience in large schools has shown that such a program may be successfully conducted on the basis of a time-allotment of approximately one full period each day. Of the five periods thus made available during the week, one or two are commonly devoted to home-room or pupil-organization activities, one to school assemblies, and the remaining two or three to club work. Assuming such a time-allotment in the small school, and assuming also an adequate number of teachers interested and skilled in this type of work, it is possible to determine in a measure the effect which a limited enrollment may have.

Home-Room Activities and the Pupil-Organization. — Properly organized home-room and pupil-organization activities accommodate themselves by definition, so to speak, to the number of pupils engaged in them. They may provide successful and valuable experience for the pupils of any school, whatever its size or grade-organization, in co-operative conduct of their affairs. In the type of home-room experience thus afforded — guidance activities, discussion of problems common to the members of the group, elaboration of extra-curricular projects undertaken by the pupils — there need be no essential difference between the small school and the large. Enrollment may have direct effect, however, on the type of experience afforded by the general pupil-organization. As enrollment decreases, such experience obviously becomes more and more that of the small group rather than of the large; so that much of the value which should be gained from large-group, relatively impersonal co-operation is necessarily unattainable. The small school thus loses, in direct proportion to its smallness, opportunity for training of a type which is coming to be recognized as increasingly important under present social conditions.

Assemblies. — Limited enrollment exerts a similar effect upon the experience afforded by general school assemblies. Valuable in large schools as a means of developing an active and unified public opinion in a more or less heterogeneous group of pupils, and of acquainting pupils with phases of the school's work with which they would otherwise not be familiar, assemblies inevitably become in the very small school gatherings of pupils who are already in relatively close touch with each other's activities and opinions. Even in the small school, however, they may continue to serve the function of providing worthwhile experiences not included in the school's regular work, and of lending added impetus to co-operative activities.

Club Activities. — It is in the organization of club work that limited enrollment exerts its most obvious influence. Upon the number of pupils needed to carry on a given club activity most successfully we have no present data; but it is apparent that the possible number and diversity of such activities must be in direct

proportion to the school's total enrollment. Since the interest and in large measure the value of such activities seems to depend upon a relatively high degree of specialization, this limitation must mean a definite loss in the possibilities of exploration for many pupils. It represents, therefore, a serious restriction of the opportunities for specialized try-out and guidance which the school can provide.

The possible range and value of club activities are affected in the small school by another factor not immediately dependent on the school's enrollment, but so closely related to it as to demand consideration at this point. This factor is the comparative similarity of the out-of-school life of all pupils. Reference to Table I will show how limited must be the contacts of the small-school pupils with people engaging in varied types of occupations and actuated by varied interests. Even those towns characterized as "industrial," which might seem to offer opportunities for wide experience, are in the main built up about a single small industry. School-children in these communities are likely to find association, moreover, only with the wage-earners of the industry in question, since the employers and managers of the local plants either live elsewhere or hold themselves more or less aloof from the rest of the population. Though the residential communities represented frequently include people of diverse interests, the occupations of these people are in general even more completely set apart from their home life than is the case in the city. The rural communities, devoted as they are to small-farming and dependent upon the city for the performance of nearly all other activities, offer probably the least variety of experience of any of the towns and villages included in this study. The result of these conditions is that there is far less opportunity in the small school than in the large, for that development of pupils' knowledge and interests which may be expected to come both from out-of-school contacts and from the school associations of pupils from different environments and with different outlooks.

After-School Activities. — Of the after-school extra-curricular activities, the conduct of athletics is most noticeably affected by small enrollment. This is true, however, only in the matter of

large-group competitive sports; the development of interest and skill in non-competitive or small-group athletics, — tennis, hiking, camping, and the like, — which is becoming recognized to an increasing extent as an important responsibility of the school, need suffer to no appreciable degree merely from limited numbers.

The organization of social affairs and of school-and-community activities is as feasible in the small school as in the large. The value of both these types of activity is subject, however, to the limitations observed in the case of club work and the pupil-organization. While limited enrollment does not prevent their conduct, it does place a serious check both on the number and diversity of the activities readily attempted, and on the extent to which pupils may gain from them large-group social experience.

Compensation for Disadvantages. — Compensation for the disadvantages under which the small school must labor in its extra-curricular program is to be found in a measure in the close personal relationships existing among the pupils and between teachers and pupils. As compared with extra-curricular activities in the large school, the greater unity possible in the school of small enrollment, and the necessarily closer contact between pupils of all grades and every "set," permit a type of social experience which is of great value, even though it is not as varied as that of a larger and more impersonal organization. The more intimate acquaintance of teachers, furthermore, with the pupils, their parents, and the community as a whole, may in many instances make possible a more specific adaptation of work to pupils' interests and needs than is possible in large school systems. But in the extra-curricular program as a whole, no road would seem to be open to complete removal of the handicap under which the small school is placed.

General consideration of the school's restrictions would suggest the six-six organization as a desirable remedy for a number of specific disadvantages. In the school assemblies, the pupil-organization, the social affairs of the school, and the school-and-community events, the combination of the six upper grades in a

single group means for the small school opportunity for broader and more varied social relationships than is possible with a rigid separation of junior and senior high school. That such combination is of limited value in athletics, however, will be at once apparent. Its advantage in connection with the organization of clubs is likewise open to question. Experience with junior high school clubs seems to have established club work as a feasible and desirable feature of the school's program; but the success of clubs in the senior high school has not, up to the present time, been so marked as to give assurance that this type of organization is equally effective with senior high school students. Combination of pupils of widely varying experience and maturity in such activities would seem to present, moreover, a situation as difficult to meet effectively as that produced by similar combination in classroom work. There is therefore room for serious doubt that so far as enrollment alone is concerned the junior-senior high school offers important advantages in this special type of extra-curricular activity over the separate junior high school. That it may offer a gain in other directions seems evident.

Summary. — Our conclusions as to the effect of limited enrollment upon extra-curricular activities in general may be summarized as follows:

1. Limited enrollment alone need not prevent the small junior high school, whatever its size or grade-organization, from undertaking any one of the recognized activities included in the extra-curricular program.

2. In proportion to the smallness of its total enrollment the junior high school cannot provide, however, that training in large-group and relatively impersonal social relationships which is increasingly demanded by present social conditions.

3. Small enrollment places a serious check upon the number and diversity of the club activities which the school can undertake, thereby limiting to a considerable extent the variety of possible contacts and restricting a field of experience which offers valuable opportunity for try-out and guidance.

4. The comparative similarity in the out-of-school life of pupils composing the population of the ordinary small school places still further restrictions upon the school's provision of varied social experience leading to try-out and guidance.

5. The junior-senior high school organization offers important advantages over the separate junior high school organization for the small school, in its provision of more varied social experience. It is of no apparent assistance, however, in removing the handicap placed by small enrollment on the range of junior high school club activities.

It is to be recognized that enrollment alone is of less effect in determining the type of extra-curricular organization feasible in the small school than in establishing the curricular organization to be adopted. The number of teachers available, their interests, training, and experience, and the professional viewpoint of the school's supervisory officers, are even more important. Further analysis of the small school's extra-curricular program and discussion of the programs in force in the Massachusetts schools will therefore be postponed until these factors have been considered.

CHAPTER VI

DIFFICULTIES DUE TO THE SIZE OF THE TEACHING STAFF

1. *Theoretical Considerations*

Size of Teaching Staff as Determined by Class Enrollments. — In setting twenty-five as the average class-enrollment to be sought in the junior high school, we have established in part the basis for determining the number of teachers necessary in a given school. If we assume the organization of study-classes on the same basis as that of recitation-classes, it is evident that the school must provide at any one time as many teachers as there are separate classes. The average number of classes meeting simultaneously will be equal to the total enrollment of the school divided by the average class-enrollment. Hence the average number of teachers necessary at any one time, or the total number of full-time¹ teachers required, will also be indicated by the total enrollment divided by the average class-enrollment. If for the average class-enrollment we establish a standard of twenty-five, then the number of full-time teachers theoretically necessary will be equal to one-twenty-fifth the number of pupils in the school.

The size of the teaching staff required for a given school is affected, however, by a number of factors which do not enter into this simple computation. First, the number of full-time teachers thus determined does not show the number of individual teachers who may be needed at a given period of the day. A single period devoted to required classes in all grades may demand the services of only as many teachers as there are grade-sections; whereas a single period during which elective classes are offered within every grade (to take an extreme example) may require more than twice that number. In other words, the results given by compu-

¹ "Full-time" here implies the carrying of a teaching load including every period of the day and week.

tation refer to a composite of teaching time rather than to the number of individual teachers who must share in the work of the school. Second, any school which intends to organize its work without widespread combination of grades in required subjects must provide approximately as many full-time teachers as it has grade-sections, no matter how small its total enrollment. Nestor, for example, with forty-six pupils in its three grade-sections, must furnish three full-time teachers, even though its total enrollment indicates need for fewer than two. Third, the results afforded by this computation make no allowance for regulation of individual teaching loads in terms of total hours per week. If each teacher is to be allowed a certain number of free periods each week, then the total number of teachers required will be proportionately greater than that indicated. Since each of these three factors influences in measurable degree the number of teachers needed in a given school, it is desirable that their effects be examined in some detail.

Need of Varying Numbers of Teachers at Different Periods. — The first factor — the number of teachers needed at a given period of the day — is of importance when specific circumstances make it impossible to adjust the number of teachers available to the number of classes to be taught. This frequently occurs (especially in the small school) when it is necessary to offer at one time a greater number of recitation- and study-classes than there are teachers. In such cases adjustment is generally attained through the abandonment of the study-group as a separate class and its assignment to one or more rooms in use by other classes; with the result that a smaller total of teaching time is utilized than would be indicated by computation. Lack of adjustment may also occur when the schedule cannot be so arranged as to make effective use of every teacher's time — that is, when one or more teachers have no teaching duties at periods when they would ordinarily be expected to assume them. Such a situation of course makes necessary the employment of more teachers than would be required if the teaching schedule of each could be properly filled. Unfortunately, neither of these situations can be taken into account in any general determination of

the size of the teaching staff for a given school: they are a product of local administrative conditions rather than of the school's organization or enrollment. The possibility that they may arise thus demands the liberal interpretation of any *a priori* estimates of the number of teachers required under specific conditions.

Number of Grade-Sections as a Determining Factor. — Determination of the size of the teaching staff by number of grade-sections instead of by total enrollment is necessary only in schools which cannot offer a program of required and elective classes with an average enrollment of at least twenty-five pupils. In other schools it will be found that the number of teachers required by the total enrollment is at least as great as the number of grade-sections. Study of the effect of small enrollment has shown that the schools most likely to be handicapped in this respect are three-year schools of between 110 and 150 pupils or of fewer than 75 pupils, and two-year schools of between 75 and 100 pupils or of fewer than 50 pupils.¹ Schools whose enrollments fall between these limits must expect to employ a number of teachers in excess of that indicated by their total enrollment, if they are to afford complete supervision of the work of each recitation- and study-class.

Teaching Load. — The third factor — variance of the number of teachers necessary according to the teaching load required — is one which affects all junior high schools, whatever their enrollments or their class-schedules. As to the specific teaching-load which is to be considered desirable we have no conclusive evidence; its determination must at present be as largely a matter of administrative judgment as must that of the optimum class-enrollment. The most widely accepted estimates are probably those of the North Central Association of Colleges and Secondary Schools, which sets tentative limits on both the number of pupils to be taught per day and the number of periods of classroom

¹ See Chapter IV (summarized on pages 60-62). Eastwood, with a total enrollment of 87, furnishes an example of a school not included within the limits set, which is nevertheless handicapped by its need for sectioning a single grade. (See Table XI.) Its anomalous position here, as in the matter of elective offerings, is due to the unusual grade-distribution of its pupils.

instruction to be assumed per week, by teachers in the "standard" junior high school. Its recommendations are as follows :

" 6. The total number of forty-minute periods of classroom instruction given by any teacher of academic subjects shall not exceed thirty per week ; nor shall the number of periods taught by any teacher of non-academic subjects exceed thirty-six per week.

" 7. The total number of periods of classroom instruction given by any teacher of academic subjects in a school having some definite plan of supervised study should not exceed twenty-five per week ; nor should the number taught by any teacher of non-academic subjects exceed thirty per week.

" 8. The maximum number of pupils assigned daily to any teacher of academic subjects should not exceed 210."¹

Since we have assumed thirty-five pupils as the maximum enrollment in any academic class,² it is obvious that the standard relating to the number of pupils to be assigned daily to academic teachers cannot be exceeded so long as each teacher carries a load of no more than six periods per day. It is therefore with the teaching load in terms of hours per day and per week that we are primarily concerned.

The upper limit proposed for this teaching load becomes especially significant when interpreted in terms of the length of the usual school day. The junior high school whose class-periods are forty minutes in length ordinarily provides seven such periods in its daily schedule ; the school planning for fifty-minute periods with supervised study offers six periods daily.³ In terms of periods per week these schools offer, respectively, thirty-five and thirty periods. Strict adherence to the proposed standards means that in the school offering thirty periods a week, with supervised study, each academic teacher may carry only five-

¹ North Central Association of Colleges and Secondary Schools : "Report of the Junior High School Committee." *Proceedings*, 1925 : Part I, p. 67.

² See page 24.

³ Though numerous large junior high schools offer a schedule of five sixty-minute periods, with supervised study, none of the schools included in the present investigation has organized such a schedule. The administrative difficulty of providing a flexible program on this basis is such as to make its use in the small junior high school almost out of the question. (See pages 157 ff. and 191 ff.)

sixths of a full-time program; in that offering thirty-five periods, without supervised study, the teacher's load may be only six-sevenths of the number of periods. For each of these schools there is necessary, therefore, a greater number of teachers than that indicated by the total enrollment. How great this number must be is dependent in part on the proportion of the school's work which is academic in nature. The program of studies later to be proposed for the small school¹ demands an allotment of approximately three-fourths of the teaching time to such work. Hence the number of teachers necessary on a thirty-period basis becomes approximately one-seventh (three-fourths times one-fifth) more than the number obtained by the original computation; and on a thirty-five-period basis, one-eighth (three-fourths times one-sixth) more than that number.

Estimated Numbers of Teachers Necessary under Various Conditions. — If then we give due weight to the second and third of these factors, it is possible to correct the estimates based on total enrollment alone, in such manner as to indicate approximately the number of teachers required in schools of various sizes under varying conditions. The fact that no general correction can be made for local administrative conditions means that the figures obtained can be only approximations in the case of specific schools. The schedule for any given school may, however, make necessary the employment of more teachers than the estimated number, as well as of fewer; so that the figures offered may fairly be considered to represent the central tendency. For schools attempting to maintain an average class-enrollment of twenty-five pupils without seriously impairing the unity of single grades, these figures are presented in Table X.

It must be borne in mind that the estimates here given assume the assignment of one teacher to each recitation- or study-class provided for in the daily schedule. Except on the thirty- or twenty-five-period basis this does not necessarily imply direction of study in the fullest sense; but it does imply at least separate monitorial supervision of study-groups. In schools which do not provide such supervision, the numbers of teachers necessary may

¹ Chapter XIII.

be proportionately less than those indicated. The estimates presented are to be interpreted, therefore, not as absolute minima, but as the minima necessary to allow direct oversight of every pupil's work during the whole of each school day.

TABLE X

ESTIMATED NUMBER OF TEACHERS REQUIRED IN SCHOOLS OF VARIOUS ENROLLMENTS

ENROLLMENT	NUMBER OF TEACHERS REQUIRED		
	Full-Time Teaching	30-Period Teaching Load: 35-Period Schedule	25-Period Teaching Load: 30-Period Schedule
<i>3-Year Schools</i>			
Over 165	6.6 or more	7.4 or more	7.6 or more
150 to 165	6.0 to 6.6	6.8 to 7.4	6.9 to 7.6
110 to 150	4.4 to 6.0 ¹	5.0 to 6.8 ¹	5.1 to 6.9 ¹
90 to 110	3.6 to 4.4	4.1 to 5.0	4.1 to 5.1
75 to 90	3.0 to 3.6	3.4 to 4.1	3.5 to 5.1
Below 75	3.0 ¹	3.4 ¹	3.5 ¹
<i>2-Year Schools</i>			
Over 110	4.4 or more	5.0 or more	5.1 or more
100 to 110	4.0 to 4.4	4.5 to 5.0	4.6 to 5.1
75 to 100	3.0 to 4.0 ¹	3.4 to 4.5 ¹	3.5 to 4.6 ¹
60 to 75	2.2 to 3.0	2.5 to 3.4	2.5 to 3.5
50 to 60	2.0 to 2.2	2.3 to 2.5	2.3 to 2.5
Below 50	2.0 ¹	2.3 ¹	2.3 ¹
Average Pupil Load per Day	175 or less ²	150 or less	125 or less

Implications as to Administration. — These figures possess important implications as to the administration of the small junior high school. They will be found to have most direct bearing on (a) departmental teaching, (b) promotion by subject, (c) other types of provision for individual differences, and (d) the provision of extra-curricular activities.

¹ Exact number of teachers dependent on number of grade-sections.

² Seven-period day assumed.

A. Departmental Teaching. — Inability to maintain an appropriate departmental organization may be expected to exert most immediate effect upon efficiency of instruction in the various school subjects. The primary purpose of such organization is, of course, to make possible a degree of specialization in teaching; and in so far as it cannot be attained teachers will be obliged to undertake work in which they may have little or no proficiency. Lack of departmental organization may also affect in considerable measure the general program of studies offered by a given school. Assuming a staff large enough to meet the needs of the school as determined by a normal average of class-enrollments, the number of teachers employed does not in itself limit the program of work which may be offered, since any program which is feasible for the pupils may be accomplished in the total teaching time of such a staff. But when conditions are such that each teacher must be responsible for an unusually large number of different subjects, the problem of securing teachers adequately prepared for their work becomes especially difficult, and occasionally impossible, of solution. Hence we may well expect to find necessary limitations of offerings in schools which cannot provide for adequate departmentalization. It is important, therefore, to consider in some detail the feasibility of departmental organization in the small school.

To What Extent Should Teaching Be Departmentalized? — Complete departmentalization means the assignment to each teacher of a single general subject of instruction. Organization on this basis has long been common in the large senior high school, and is frequently found in the junior high school. But those who advocate it for the latter school lose sight of the fact that with complete departmentalization there occurs between elementary school and junior high school just that sudden change in type of organization which is by all means to be avoided. Our standards for the junior high school must therefore be based on a departmentalization which demands of each teacher instruction in a number of subjects, rather than one only.

How large this number should be we may determine approximately by a consideration of the total program of the junior high

school, in relation to the number of different teachers to be assigned to each grade. Classified in general terms, the junior high school courses of study ordinarily embrace English, mathematics, foreign language, social studies, science, music, art, health education, practical arts for boys, home economics for girls, and commercial subjects. Of these courses, nine — all but foreign language and commercial subjects — are commonly found in the seventh grade. The complete list of eleven is usually included in the program of the eighth and ninth grades. In the average school system, gradual introduction of departmentalization may be considered to mean the assignment of three different teachers to the work of grade seven, of four teachers to that of grade eight, and of five teachers to that of grade nine.¹ Hence of the nine seventh-grade courses, an average of three must be assigned to one teacher; of the eleven eighth-grade courses, an average of two and three-fourths must be assigned to one teacher; and of the eleven ninth-grade courses, an average of two and one-fifth must be assigned to one teacher. Considering the three grades together, each teacher must assume an average of 2.65 different courses. If we carry out a similar computation for the school which includes grades seven and eight only, we find that each teacher must assume an average of 2.88 different courses.

Maintenance of departmental teaching on this basis means that the three-year school must be able to avail itself of at least five different teachers — the maximum number of different individuals to be entrusted with the work of any one grade. Similarly, the two-year school must be able to avail itself of at least four different teachers.

Departmental Teaching in Separate Junior High Schools. — Reference to Table X makes it possible to determine how large an enrollment a school must have in order economically to provide

¹ This assumption is based on two considerations: (1) in the elementary grades pupils ordinarily come in contact with a special-subject supervisor or practical arts teacher, in addition to their grade-teacher, so that they have had experience with work departmentalized to the extent of its division among two or more teachers; and (2) the limited number of courses carried by senior high school pupils means that they are seldom assigned to more than five or six different teachers.

departmentalization within its own staff on this basis. For the three-year school, a staff of five teachers means an enrollment of no fewer than 110 pupils, assuming a duly regulated teaching load. For the two-year school, a staff of four teachers means, under similar conditions, an enrollment of approximately 90 pupils. With enrollments smaller than these, the junior high school which draws its teachers only from its full-time staff cannot economically provide the desired departmental organization.

Certain junior high schools enrolling fewer than 90 or 110 pupils may make adequate provision for departmental teaching, however, through the use of teachers from elementary or senior high school grades. By extending departmentalization into grades below the seventh, in cases in which the junior high school is housed with an elementary school, the number of different individuals who share in the work of the junior high school — and hence the extent of specialization in teaching — may be measurably increased. So far as concerns the “regular” subjects of instruction (English, mathematics, the social studies, and possibly science), it is doubtful that the introduction of such organization below the sixth grade will be desirable or even feasible, owing to the difference in the preparation of lower-grade teachers from that needed in junior high school work. Against such organization there may well be argued also the undesirability from the standpoint of pupils’ needs, of departmentalization below the junior high school level. A more promising opportunity for departmental organization in connection with the elementary school is afforded through the teachers of special subjects — music, art, physical training, practical arts, and domestic science.¹ School systems employing elementary-school “supervisors” in one or more of these subjects may draw upon these supervisors for the necessary class-teaching in the junior high school. Whether in “regular” or in “special” subjects, however, the provision of departmental work in conjunction with the lower grades offers serious inconvenience and possible disadvantage

¹ In Raleigh, the high-school teachers of music, science, and drawing act as supervisors of these subjects in the grades.

from the standpoint of effective teaching. Its merits in making possible a certain degree of specialization in teaching must therefore be weighed even more carefully than in the large school against the disadvantages which it may entail.

Departmental Teaching in Junior-Senior High Schools. — Junior high schools enrolling fewer than 90 or 110 pupils which are housed with senior high schools may find in the use of senior high school teachers a reasonably satisfactory basis for departmental organization. Though there is room for objection to the assignment of junior high school classes to teachers whose outlook and experience are primarily those of the senior high school, it is probable that such assignments, especially in the ninth grade, offer under the circumstances greater advantage than disadvantage. If the junior high school alone is considered, it is certain that they provide means for establishing the desirable departmental organization in the junior high school grades, in any junior-senior high school whose total enrollment is such as to call for more than five teachers.

Inference should not be drawn from these conclusions that three-year schools with five or more teachers, and two-year schools with four or more teachers, may under all circumstances provide adequate departmentalization in each grade without the use of teachers from the elementary school or the senior high school. The various complex factors to be considered in schedule-making obviously mean that the greater number of teachers a school finds available, the greater will be the possibility of assigning classes to individual teachers according to an appropriate departmental plan. Hence the limits which we have set represent merely those below which a school cannot hope to establish within itself a satisfactory departmental organization. For the three-year school with fewer than five teachers, and the two-year school with fewer than four teachers, combination with elementary or senior high school grades is essential to adequate departmentalization; larger junior high schools will find such combination of definite advantage.

B. Promotion by Subject. — The second phase of junior high school administration which is seriously affected by a small teach-

ing staff is that of promotion by subject. Complete provision for promotion by subject demands a schedule of recitations in which at least one class in each subject in each grade is assigned to the same periods during the week as those of one class in the same subject in the succeeding grade. Such an arrangement makes possible a pupil's election of courses in the grade above or below that in which he is regularly enrolled, without in any way disturbing his normal schedule. If it is to be effective in every subject, it requires at least one teacher in that subject for each grade, in order that classes in all grades may be taught simultaneously. With non-departmental teaching, this means no more than one teacher for each grade or grade-section, since each teacher's schedule may be made if necessary to conform to that of every other. But in proportion as the number of subjects assigned to each teacher is limited, the number of teachers necessary to allow the required correspondence in schedules is increased. We have assumed for the three-year school a degree of departmentalization which demands responsibility on the part of each teacher, on the average, for 2.65 different courses, or $2.65/11$ of the offerings of each grade-group. Complete provision for promotion by subject in such a school will require $11/2.65$ teachers per grade, or approximately thirteen teachers in the school as a whole. In the two-year school there will be necessary $11/2.88$ teachers per grade, or about eight teachers in all. Hence the economical provision of a complete system of promotion by subject, in conjunction with the departmentalization which we have assumed as standard, demands an enrollment in the separate three-year school of at least 275 pupils, and in the two-year school of at least 170 pupils.¹

Advantages of Junior-Senior High School Organization. — As in the case of departmental teaching, the number of teachers necessary to make possible a flexible system of promotion by subject

¹ These figures assume a teaching load of 30 periods per week, in a schedule of 35 periods. (See Table X.) Like the estimates as to the number of teachers required for adequate departmentalization, they have been determined mathematically, on the basis of average teaching assignments. They must therefore be interpreted as theoretical minima; the actual difficulties of schedule-making will in almost every case demand that they be liberally increased.

may be obtained in certain schools by combination with lower or higher grades. As previously indicated, the use of elementary-school teachers is likely to be attended with serious disadvantages; so that the greatest promise with respect to promotion by subject is to be found in the junior-senior high school organization. If the combined junior and senior high schools employ a staff of thirteen or more teachers, provision for such a system is theoretically possible. A rough calculation will show, however, that for schools of the sizes included in this study combination with the senior high school will rarely provide a staff of the necessary number of teachers. On the basis of the grade-distribution of pupils in the seven Massachusetts schools organized on the modified six-three-three plan, 63% of the teaching staff, or 8.2 teachers from a staff of thirteen, would normally be allotted to the three junior high school grades. As determined by the distribution of pupils in the two schools organized on the six-two-four plan, 40% of the teachers, or 5.2 from a staff of thirteen, would normally be allotted to the seventh and eighth grades. On this basis it may be tentatively concluded that combination with the senior high school staff will allow complete promotion by subject only in schools which may be expected to provide at least this number of teachers for the junior high school grades alone: that is, in three-year schools of at least 180 pupils, and in two-year schools of at least 115 pupils.¹ In other words, for junior

¹ The precarious basis for this conclusion, so far as concerns its general application, is fully recognized. It would possibly be wiser, in view both of the limited data at hand and of the wide variations in specific cases, to attempt no such generalization. If one is to be made, however, it may more safely be founded on conditions existing in even a limited number of small schools than on distributions of enrollment in both large and small schools the country over.

Statistical conscience prompts the addition of the following data with respect to variability of enrollments in the schools under consideration. (These enrollments will be found in Table I.) In the seven schools organized on the 6-3-3 basis, the percent of enrollment in the junior high school grades ranges from 54% to 73% — a range of 20%. In terms of teachers, this means from 7.0 to 9.5 — a range of 2.6. The mean has been given. The mean deviation is 6.3% — .8 of one teacher. This implies a mean deviation of 18 pupils from the estimated (exact) standard of 182. — In the two junior high schools organized on the 6-2-4 basis, the percentages of enrollment in the seventh and eighth grades are respectively 47% and 34%. The range is thus 14%, representing 1.8 teachers. In terms of pupils, the mean deviation from the estimated (exact) standard of 116 is 20.

high schools enrolling fewer than approximately sixty pupils per grade provision for a complete system of promotion by subject, even through combination of the teaching staff with that of the senior high school, will rarely be possible on any economical basis.

Adjustments Necessary to Allow Promotion by Subject. — The problem of arranging promotion by subject in a three-year school of fewer than thirteen teachers, or in a two-year school of fewer than eight teachers, becomes one of adjusting the schedule to the needs of specific individuals, with frequent demands for compromise between an organization best suited to the majority of the pupils and one which will meet the needs of a special group. In the case of promotion (or retardation) in a subject taught by different teachers in succeeding grades, the problem may frequently be solved through a mere shifting of the schedule. Serious difficulties arise, however, with respect to promotions in a subject in which all classes are taught by a single teacher. In cases of this type partial abandonment of departmental teaching, or a change in departmental lines, may of course always be relied upon as one method of providing necessary adjustment. A second method, which need not interfere with departmentalization, is that of arranging for promotion by pairs of subjects instead of by single subjects. This method requires the scheduling in a given grade of two classes which are taught by two different teachers, at the same periods as the corresponding classes taught by the same teachers in the succeeding grade, but in inverse order. That is, in the case of English and history, it requires a schedule which places seventh-grade English and eighth-grade history in the same periods, and seventh-grade history and eighth-grade English in the same periods. The needs of eighth-grade pupils who must take seventh-grade work in both subjects, or of seventh-grade pupils who can profit by eighth-grade work in both subjects, may be adequately met by such an arrangement. For pupils who have failed in one or more subjects but have gained promotion in the greater part of their work, it makes necessary a smaller amount of wasteful repetition than the simple grade-promotion scheme. Since it requires promotion in at least two subjects, it is not so clearly applicable to pupils who may well be given special

promotion in a single subject in order to allow more rapid advancement. The plan is difficult to put into effect on a large scale, moreover, and it may be out of the question in a given school because of the impossibility of the specific subject-teacher combinations required; but it is feasible in a limited number of subjects and of combinations in any departmentalized school. A third method of adjustment, and one commonly found in the schools under consideration, is that of scheduling classes in the "major" subjects in one grade — that is, the subjects on which promotion is most largely based — at the same periods as study-classes or classes in the "minor" subjects in the grade preceding or following. Pupils of the latter grade who need out-of-course work in their major subjects are then excused from the regular classes falling at these periods. That no one of these three methods is wholly satisfactory is only too apparent. Varying in possibility of application according to chance variations in the requirements of individual pupils from year to year, the need for their use provides an added indication of the disadvantages under which the small school must work.

Difficulties of Schedule-Making in the Small School. — As a result of the difficulties involved both in the organization of teaching on a departmental basis and the arrangement of promotion by subject, the task of making the schedule for the small school becomes a more than commonly arduous and perplexing one. It must be accomplished not merely with a limited number of teachers and class-sections, but in many cases with teachers whose schedules are arbitrarily fixed by their assignments to other schools. Inadequate housing and equipment¹ frequently afford still further complicating elements. The fact that individual pupils only, and not groups of pupils as in the large school, are likely to need certain special programs of work, means that schedule-making becomes a test of ingenuity, to be met anew year after year, in fitting together class-periods in such fashion as to meet the requirements of as many individuals as possible. If all the various conflicting factors are to be adequately dealt with, systematic procedure on the basis of a formal "block

¹ See Chapter IX.

method" is well-nigh impossible. There is little reason to wonder, therefore, at the apparent blindness of many small schools to the needs of exceptional pupils, and at their failure to provide either a well-ordered system of departmental teaching or an adequate plan of promotion by subject.

C. Other Types of Provision for Individual Differences. — The third phase of administration affected by a limited number of teachers is that of regular provision for individual differences by other means than promotion by subject. Such provision in large junior high schools commonly takes the form of study-coach work, organization of special classes, or grouping of pupils according to ability. The last means, as we have already shown, is economically impracticable in most small schools because of limited enrollment. Study-coach work and special classes are ordinarily feasible in the small school only to the extent to which teachers engaged in regular work can assume the additional duties involved. Since the provision of such work must be affected in large measure by conditions in specific schools, its discussion is postponed to the latter portion of this section, in which conditions existing in the small Massachusetts schools are examined.

D. Provision of Extra-Curricular Activities. — Provision of extra-curricular activities is the final matter to be considered in connection with limited teaching staff. As in the case of small enrollment, the effects of a limited number of teachers upon the school's offerings in this direction can be defined only in general terms. So long as the school maintains a teaching staff appropriate to its enrollment, there is little reason to assume that the small size of the staff will handicap in any important respect either the home-room activities or the work of the general pupil-organization; the scope of each of these types of activity is of necessity dependent on the number of pupils engaged in it, and not on the number of teachers available. Nor, for similar reasons, are school assemblies or after-school activities likely to be curtailed in effectiveness by a limited staff: their lessened value in the small school (if their value is in fact less than in the large school with teachers of similar training) will be due, as has been pointed out, to the small groups of pupils who can engage in them.

In the matter of club activities, however, a small number of available teachers may reinforce the undesirable limitations imposed by a small school enrollment. The range and value of such activities will be in large measure dependent on the specialized interests and abilities of the teachers who inspire and conduct them. The probable range of interests and abilities in the faculty is of course directly conditioned by its size. Hence it is in the matter of club activities that the size of the teaching staff, as well as the size of the school's enrollment, exerts its most marked effect.

Remedy for the limitations thus imposed is in a measure attainable through the junior-senior high school combination. Though membership in the same clubs on the part of both junior and senior high school pupils is probably undesirable for the reasons suggested in the preceding section, the greater number of teachers available as a result of combination of the two schools means greater likelihood of varied interests on the part of faculty sponsors for the clubs, and hence possibility of a wider variety of specialized club activities. Supervision of junior high school clubs by senior high school teachers may of course not always be thoroughly effective, particularly when such teachers have no opportunity to form contacts with the junior high school pupils in their regular classes. Sharing by upper-school teachers in the work of the lower school will generally demand, moreover, the supervision by junior high school teachers of certain senior high school activities, with perhaps corresponding disadvantages. But assuming wise administration of extra-curricular activities, there would seem to be possibility of a net gain in this respect from the junior-senior high school combination.

Summary. — The conclusions thus far advanced have been based on relatively liberal estimates of the number of teachers which an economically administered school may be expected to provide. These estimates have assumed an average class-enrollment of no more than twenty-five pupils, a time-schedule which allows a minimum number of free periods during the week to each academic teacher, and a complete program of supervised

study. Departure from any one of the standards implied means limitation in greater or less degree of the work which the school may hope to accomplish. The extent to which such departure may be necessary in the small school, and the additional handicaps resulting, may be most clearly shown through study of the conditions in the small Massachusetts schools.

2. Teaching Staffs in Small Massachusetts Schools

Size of Staffs Needed in Massachusetts Schools. — Data respecting the size of teaching staffs in the nineteen junior high schools included in this study are presented in Table XI. The number

TABLE XI

TEACHING STAFFS AND TEACHING LOADS IN SMALL MASSACHUSETTS
JUNIOR HIGH SCHOOLS

SCHOOLS	ENROLLMENT	NO. OF GRADE-SECTIONS	ESTIMATED NUMBER OF TEACHERS NECESSARY		NUMBER OF TEACHERS EMPLOYED	TEACHING LOAD		#SYSTEMATIC PROVISION FOR SUPERVISED STUDY	
			Theoretical Basis	Basis of Class-Average Attained		Hours per Week ² (35-Period Basis)	Average No. of Pupils per Day		
JUNIOR-SENIOR HIGH SCHOOLS	Arnold.....	161	6	7.2	8.1	7.8	28.7	129	X
	Benton.....	93	3	4.2	3.4	3.0	34.0	212	
	Corwin.....	89	3	4.0	4.0	3.6	33.2	166	X
	Dexter.....	89	3	4.0	4.8	4.3	30.9	128	X
	Eastwood.....	87	4	4.0	4.4	3.8	30.8	134	
	Fremont.....	71	3	3.2	3.4	3.1	28.3	134	
	Gordon.....	59	3	3.0	4.1	3.4	32.4	106	
	Raleigh.....	42	2	2.0	2.3	1.8	34.3	139	
SEPARATE JUNIOR HIGH SCHOOLS	Harlow.....	123	6	6.0	6.5	6.3	30.5	131	X
	Jackson.....	77	3	3.5	4.3	4.2	28.7	115	X
	Knowlton.....	76	3	3.4	3.9	3.5	32.7	145	
	Lundy.....	67	3	3.0	3.4	3.0	30.2	134	X
	Mason.....	62	3	3.0	3.6	3.3	32.0	103	X
	Nestor.....	46	3	3.0	3.9	3.5	28.9	78	X
	Oakwood.....	45	3	3.0	2.9	2.6	30.5	106	X
	Parker.....	30	3	3.0	3.1	2.0	34.5	76	
	Quentin.....	115	4	5.2	3.7	3.3	32.2	225	X
	Selden.....	23	2	2.0	2.0	2.0	30.7	79	
	Tarbell.....	27	2	2.0	2.7	2.0	35.0	78	

of teachers theoretically necessary in each of these schools has been established on two bases: first, in terms of the estimates proposed for schools maintaining a thirty-five period schedule, with a complete system of supervised study, with a thirty-period teaching load for academic teachers, and with a class-average of twenty-five pupils; and second, in terms of similar estimates based on the class-average actually attained in each school,¹ with the other factors unchanged.

The loss in economy which results from a school's inability to maintain a normal average of class-enrollments can hardly be more clearly shown than in the differences between these two sets of estimates. Nine of the nineteen schools have class-averages so low as to demand at least half the time of one teacher in addition to the number necessary on a twenty-five-pupils-per-class basis, if the other conditions proposed as standard are to be fully maintained; and one school (Gordon) has so organized its classes as to need four teachers instead of three in order to meet these standards.

Comparison of Estimates with Actual Staffs. — Both sets of estimates become of greater significance, however, when they are compared with the number of teachers actually employed in each school. Eleven of the schools are now employing teaching staffs large enough to make possible the attainment of average teaching load and of complete supervision of study, provided the standard average of class enrollments is maintained. But only one school — Selden — has a sufficient number of teachers to supply these conditions on the basis of its actual class-enrollment. The remaining schools fall short of the necessary number of teachers by from one-tenth to one and one-tenth (in Parker) times the full services of one teacher. In other words, while approximately six-tenths of these schools have teaching-staffs large enough to insure adequate teaching conditions if their classes were organized on a twenty-five-pupil basis, almost none has a sufficient number of teachers to insure completely adequate conditions with the class-enrollments actually attained.

Sacrifices Necessary Owing to Shortage of Teachers. — This

¹ See Tables VII and IX.

shortage of teachers makes necessary a sacrifice in the average teaching-loads assigned and in the extent to which study-pupils are supervised. Schools in which the teaching staffs are nearly adequate on the basis of actual class-averages — as in Arnold, Harlow, and Jackson — may be able, by slight sacrifice in one or both directions, to meet this disadvantage with no very serious effect upon general teaching conditions; and such examination of actual school conditions as was possible in this investigation would seem to show that they have done so. Those schools in which there occurs grave discrepancy between the number of teachers necessary and the number available must unavoidably suffer severely. Five schools — Benton, Corwin, Parker, Raleigh, and Tarbell — have raised their teaching loads in terms of hours per week to the maximum or almost to the maximum possible; eight others require their teachers to assume schedules slightly heavier than thirty periods per week; and only two schools — Fremont and Nestor — impose average schedules below the standard of thirty.¹ Reports from the principals as to systematic provision of supervised study, as noted in the table, are not wholly reliable, owing to wide variations in the interpretation of the term and in the principals' attitudes toward a supervised-study program; but they afford some indication of the sacrifices necessary in this direction. Of the five schools whose teachers are most heavily burdened, only one claims systematic supervision of study. Of the two with relatively light schedules, one reports such a system. Five of the remaining nine schools with inadequate staffs have attempted work in this direction. Study of the schedules of all these schools and such observation as could be made of the work in progress seemed to indicate that the major part of the study-supervision was carried on only in recitation periods, the numerous periods definitely set apart for study being devoted to largely independent work under the eye of a teacher-monitor or to completely independent study at the back of a recitation room. Of

¹ It is to be noted that teaching loads for all these schools are reported without distinction between academic and non-academic teachers. The varied subjects taught by each teacher in many of the schools, and the practical absence of non-academic subjects in certain schools, make such distinction impossible for the group as a whole.

the schools with insufficient staffs it is a fair conclusion that all have made certain sacrifices ¹ in this direction; and if we compare the practice of these schools in the matter of assignment of teaching loads with their provision for supervised study, it seems probable also that they have preferred the sacrifice of study-supervision to the increase of teaching loads.

Though the division of teachers' work between various schools has made accurate computation of pupil-teaching-loads impossible, an approximate indication of the average of such loads for each school is presented in Table XI. The figures there given have of necessity been computed from the data on the average class-enrollment for each school, and the average number of teaching periods per week — not from immediate statistics as to enrollment in the classes of each teacher. They indicate for the schools in general an average pupil-load much below the upper limit of 210 set by the North Central Association. In only two schools — Benton and Quentin — has this limit even been approached.

Separate Junior High Schools and Junior-Senior High Schools Compared. — Comparison of conditions in schools organized on a modified six-six plan with those in schools which are independent of the senior high school organization brings to light no significant differences between the two groups. Considering each group of schools as a unit, the ratio of the number of teachers employed to the number theoretically necessary is in each case .89 to 1. The mean teaching load in terms of hours per week is for the six-six schools 31.6, and for the separate junior high schools 31.4. For pupil-teaching-load the mean in the one case is 144 and in the other 128; the difference is very largely due to the fact that the smallest of the schools are found in systems having

¹ Whether provision for a certain amount of independent study, especially for upper-grade pupils, may not be advantageous rather than disadvantageous, is a matter upon which we have at present no conclusive data. The schedules of all the schools in question make independent study necessary in greater or less degree; so that "systematic provision for supervised study" implies not completely supervised study but merely definite administrative provision for a certain number of supervised-study periods. Because of the lack of definitive standards as to the proportion of supervised and unsupervised study desirable, departure from a plan of completely supervised study has here been arbitrarily interpreted as entailing a sacrifice in this direction.

no senior high schools. Only in the matter of systematic provision for supervised study does any very considerable variation appear: seven of the eleven separate junior high schools, as compared with three of the eight junior-senior high schools, have attempted such provision. In view of the relative uniformity of other conditions in the two types of schools, it is probable that the difference in this respect arises in chief measure from differences in the viewpoints of supervisory officers.

Effects of Limited Staffs on Administration. — When we attempt to trace the effect of limited teaching-staffs upon departmentalization, promotion by subject, certain other types of provision for individual differences, and the offering of extra-curricular activities in specific schools, we find the basic factors so entangled with local administrative custom that clear-cut conclusions are difficult to reach. Consideration of extra-curricular offerings may best be postponed to a later section. Bearing in mind the effects of administrative policy, however, we shall find it interesting in this connection to examine practice in Massachusetts schools in the other matters.

Departmental Teaching. — The extent of departmental teaching in the small Massachusetts schools is indicated in Table XII. For each school is shown the number of individual teachers (including all teachers sharing in the work of the junior high school) who teach one, two, three, or more subjects; the number of teachers who teach one, two, three, or more grades; and the number of different teachers under whom pupils in each grade carry on their studies during each week. There is also presented the number of subjects offered in each school, classified in terms of the eleven divisions of subject matter listed on page 76.

Two characteristics of the assignments of subjects to individual teachers are immediately apparent: first, the inconsistency with which these assignments appear to be made in a large number of the schools; and second, the difference in extent of departmental teaching between the junior-senior high schools as a group and the separate junior high schools as a group.

Inconsistency of Assignments to Individual Teachers. — Of the inconsistency of assignments, Corwin and Knowlton afford ex-

treme examples — Corwin with two of its teachers carrying a single subject each, while four others teach from two to seven subjects; and Knowlton having two teachers carrying two subjects each, with two others (excluding a sixth-grade teacher) carrying three and six subjects, respectively. Inequalities of this sort seem to occur to a greater extent in the junior-senior high schools, in which the larger number of teachers available might reasonably be expected to facilitate departmentalization, than in the separate

TABLE XII A

EXTENT OF DEPARTMENTAL TEACHING IN SMALL MASSACHUSETTS
JUNIOR HIGH SCHOOLS

SCHOOLS	NUMBER OF SUBJECTS OFFERED	NUMBER OF SUBJECTS TAUGHT BY INDIVIDUAL TEACHERS ¹						NUMBER OF GRADES TAUGHT BY INDIVIDUAL TEACHERS ¹							
		One Subject	Two Subjects	Three Subjects	Four Subjects	Five Subjects	Six Subjects	Seven Subjects	One Grade	Two Grades	Three Grades	Four Grades	Five Grades	Six Grades	Seven or More Grades
Arnold.....	11	7	3	1						3	3	3		2	
Benton.....	7		3	1		1			1		1	1	2		
Corwin.....	9	2	1	1	1			1		2	2	2			
Dexter.....	11	4	2		2					2	3	1	1		1
Eastwood.....	10	1	3			1						3	2		
Fremont.....	8		2	4								4	1	1	
Gordon.....	9		1	1	2	1				1	3			1	
Raleigh.....	7		3	1							1	1			2
Harlow.....	10	3	3	1					2	1	4				
Jackson.....	11		2	2	1					1	4				
Knowlton.....	9		2	1			1	1 ¹		2	2	1			
Lundy.....	11		1	1	1			1 ²			2	2			
Mason.....	10		1	1	1			1 ²		2	1	1			
Nestor.....	10	1	2	1	1						5				
Oakwood.....	10			1	1		1				2	1			
Parker.....	7				1	1					2				
Quentin.....	7	1			2	1			1	3					
Selden.....	6			1		1				2					
Tarbell.....	8					1	1					2			
Totals.....	—	19	29	18	13	7	3	4	4	18	33	25	6	4	3
Per cents....	—	21	31	19	14	8	3	4	4	19	36	27	7	4	3

¹ Not including "supervisors" of special subjects.

² 6th-grade teacher.

TABLE XII B

EXTENT OF DEPARTMENTAL TEACHING IN SMALL MASSACHUSETTS
JUNIOR HIGH SCHOOLS

SCHOOLS	NUMBER OF TEACHERS (INCLUDING SUPERVISORS) INSTRUCTING EACH PUPIL			NUMBER OF TEACHERS ¹		AVERAGE NUMBER OF SUBJECTS ASSIGNED EACH TEACHER		AVERAGE NUMBER OF GRADES ASSIGNED EACH TEACHER
	Grade VII	Grade VIII	Grade IX	Available	Assigned to J. H. S.	Desirable	Actual	
Arnold.....	10	10	4-	13	11	2.7	1.5	3.5
Benton.....	1	2-3	3-4	5	5	1.8	2.8	3.6
Corwin.....	4	5	5	7	6	2.3	3.0	3.0
Dexter.....	5	5	4-	10	8	2.7	2.0	3.6
Eastwood....	6	6	4-	5	5	2.5	2.4	4.4
Fremont....	3-4	3-5	3-4	6	6	2.0	2.7	4.5
Gordon.....	5	5	3-6	5	5	2.3	3.6	4.2
Raleigh.....	3-4	3-4	—	7	4	2.0	2.3	3.5
Harlow.....	6-7	6-7	6-7	7	7	2.5	1.7	2.3
Jackson.....	4-5	4-6	3-6	5	5	2.7	2.8	2.8
Knowlton....	4-6	4-5	3	5	5	2.3	4.0	2.8
Lundy.....	4-5	5	5	4	4	2.7	4.0	3.5
Mason.....	4-5	4-5	2-5	4	4	2.5	4.0	2.8
Nestor.....	4	4-5	3-5	5	5	2.5	2.4	3.0
Oakwood....	4	4-5	3-4	3	3	2.5	4.3	3.3
Parker.....	2	2	2	2	2	2.0	4.5	3.0
Quentin....	4	5	—	4	4	2.0	3.5	1.8
Selden.....	3	3	—	2	2	1.7	4.0	2.0
Tarbell.....	2	2	2	2	2	1.9	5.5	4.0
<i>Medians</i>								
6-6 Schools	4	5	4	7.0	6.0	—	2.6	3.6
Separate								
Schools..	4	4-5	3-4	4.5	4.5	—	4.0	2.8
All Schools	4	4-5	3-4	6.1	5.3	—	2.8	3.0

junior high schools. They would appear to be due in a number of cases either to lack of systematic planning for the division of subjects among the various teachers, or to a tendency to favor certain teachers (in all probability the senior high school teachers called upon to share in the junior high school work) at the expense of others.

Differences between Junior-Senior High Schools and Separate Junior High Schools. — Differences in the extent of departmental

¹ Not including "supervisors" of special subjects.

teaching between the junior-senior high schools and the separate junior high schools are in large measure a direct result of the greater numbers of teachers available in the former schools. Though four of the eight junior-senior high schools do not assign junior high school classes to all members of their teaching staffs, every one of these schools employs in junior high school work a sufficient number of teachers to make possible the departmentalization which we have suggested as standard.¹ Of the eleven separate schools, only five — Harlow, Jackson, Knowlton, Nestor, and Quentin²— have large enough staffs to allow such departmentalization. That there has been conscious effort to provide as much departmental organization as possible in both types of schools would seem to be indicated by the figures here given. In the case of the combined schools, the number of grades taught by each teacher generally becomes greater as the schools decrease in size, allowing maintenance of approximately the same degree of departmentalization. Wide grade-distribution can be secured in most of the separate schools only through combination with elementary schools. It is perhaps significant that no more than five of these schools have effected such combination; and no separate school except Oakwood makes extensive use of it. Hence the number of grades taught by each teacher in these schools remains relatively constant, the extent of departmentalization achieved growing less as the schools decrease in size.

The extent of departmental teaching which is appropriate to each school is of course affected by the number of subjects included in the school's program. In our theoretical discussion of this question we assumed an offering of eleven different courses, which would imply for the three-year school an average of 2.65 different courses per teacher, and for the two-year school an average of 2.88 different courses per teacher. Since only four of the schools here considered offer the full number of courses, we have presented in Table XII estimates of the average number of courses which should be assumed by each teacher as determined by the total offerings of specific schools. When we compare these estimates with the averages actually attained, we find that there has

¹ See page 76.

been in general less departmentalization than is theoretically desirable.

Indications of Undesirable Departmentalization. — Two of the combined schools — Arnold and Dexter — and one of the separate schools — Harlow — have, however, established appreciably more than the desirable extent of departmental teaching. The teaching staffs of these schools are, it is to be noted, the largest of those represented in this study. The effects of excessive departmentalization are clearly shown in each case. In all the schools the number of teachers instructing each pupil gives indication of a sharp break between elementary- and junior-high-school practice, with no appropriate gradation between the seventh grade and the ninth. Arnold, in fact, presents an example of the reverse of gradual introduction of departmental teaching, subjecting its seventh-grade pupils to more than twice the number of teachers with whom its ninth-grade pupils come in contact. There would seem to be evidence in all three cases of a serious failure to balance values with respect to the departmental organization.

That there has been similar failure to provide gradual introduction of departmentalization in certain of the less completely departmentalized schools is likewise evident. Eastwood and Knowlton give fewer teachers to pupils in the ninth grade than to those in grade seven; and Jackson, Mason, Nestor, and Oakwood have so organized their work as to afford no apparent gradation in the departmental organization. Study of the time-schedules for these schools shows, however, that the unfavorable conditions are due in part to the necessary use of traveling "supervisors" in special subjects, and in part to the difficulty of arranging satisfactory schedules with the small number of teachers available. Though there would seem to be evidence in the larger of these schools of inadequate attention to the proper grading of departmentalization, the problems of schedule-making have obviously much to do with apparent defects.

Curtailment of Total Offerings. — The effect of lack of departmentalization on the number of different subjects offered in the various schools is obscured through the operation of many other

factors. It is perhaps worthy of note, however, that of the nine schools which employ staffs too small to make possible normal departmentalization (Raleigh, and Lundy to Tarbell, inclusive), only one — Lundy — offers a program including the full eleven fields of subject matter. The curtailment of offerings in the two-teacher schools — Parker, Selden, and Tarbell — is particularly apparent.

Summary. — Consideration of departmental teaching in the Massachusetts schools as a group seems to warrant the conclusion that there has been less effort to provide a gradual transition in this respect from elementary school to senior high school, than to afford opportunity for specialization in teaching to the various members of the teaching staffs. Particularly is this true of the larger schools. Such organization as will meet the needs of pupils, especially in the lower grades of the secondary school, will not allow for all teachers the extent of specialization which they may find desirable. Though the difficulties of schedule-making frequently prevent complete adjustment to pupils' needs, there would seem to be opportunity even in the small school for a greater degree of adjustment than has been achieved in a large proportion of the schools here considered.

Promotion by Subject. — The promotion systems in use in the nineteen schools, and other types of provision for exceptional pupils which are regularly employed in these schools, are presented in Table XIII.

Reference to Table XII will show that Arnold alone has a teaching staff large enough to make possible — even in theory — a complete system of promotion by subject. Departmentalization has been so extensive in this school as to prevent the inauguration of such a system. Hence the plans of subject-promotion found in all the schools, including Arnold, are definitely limited in scope; they consist in each case not of a relatively permanent general system, but of such special adjustments of the schedule as can be arranged to meet the needs of individual pupils.

Promotion by Subject Handicapped in Separate Schools. — It is perhaps significant that the eleven schools which make such adjustments comprise all but one of the eight junior-senior high

schools, and only four of the eleven separate schools. Explanation for the apparent neglect of promotion by subject by most of the separate schools is to be found only in part in the small number of teachers available in these schools, since individual arrangements for subject-promotions are to some extent possible even in schools as small as Oakwood and Parker. Smaller classes in the separate schools, moreover, can hardly have proved a major argument against such promotion; the average class-size in each of these schools except Nestor, Selden, and Tarbell may be matched in schools which offer promotion by subject. The explanation is chiefly to be found, in all probability, in the fact that

TABLE XIII

PROVISION FOR EXCEPTIONAL PUPILS IN SMALL MASSACHUSETTS JUNIOR HIGH SCHOOLS

SCHOOLS	PROMOTION BY SUBJECT		OTHER TYPES OF SPECIAL PROVISION FOR EXCEPTIONAL PUPILS		
	Of-fered	No. of Pupils Af-fected	Type of Provision	For Bright Pupils	For Back-ward Pupils
Arnold.....	X	?	Individual help in study-periods		X
Benton.....	X	?			
Corwin.....					
Dexter.....	X	6			
Eastwood.....	X	1	Seventh grade divided approximately by ability	(X)	X
Fremont.....	X	?	Regular detention classes		X
Gordon.....	X	7	History 9 divided	(X)	X
Raleigh.....	X	3	Special class in French	X	
Harlow.....	X	7	Special coaching in study-periods		X
Jackson.....	X	2	Afternoon deficiency classes		X
Knowlton.....			Individual help after school		X
Lundy.....			Individual help before school and in practical arts periods		X
Mason.....			Special help in study-periods		X
Nestor.....			After-school coaching		X
Oakwood.....	X	?			
Parker.....	X	2	After-school help	X	X
Quentin.....			Floating teacher ¹		X
Selden.....					
Tarbell.....					

¹ Works with elementary-school pupils as well as with those of the junior high school grades.

SUMMARY

No regular provision for exceptional pupils	3
Provision through promotion by subject alone	3
Provision through other methods	5
Provision through promotion by subject and other methods	8
Classification of types of special provision :	
Promotion by subject	11
For advanced pupils	2
For retarded pupils	5
Unclassified	4
Detention or "deficiency" classes (including use of floating teacher in one school)	3
Individual help in study-periods before and after school, and in practical arts periods	7
For advanced pupils	1
For retarded pupils	6
Special class for advanced pupils	1
Division of grade according to ability	2

between the separate schools and the senior high schools to which their pupils go there is so complete an administrative hiatus as to make promotion by subject of little apparent value. Admission to the senior high schools proves in every case to be granted only on the basis of completion of junior high school work ; so that promotion by subject between the last junior high school grade and the first grade of the senior high school cannot be achieved. Hence time saved by subject-promotions within the separate junior high school itself is of doubtful value ; with the result that such promotions tend to be arranged only infrequently or not at all. Though this lack of articulation is likely to affect most commonly the schools in systems providing no grades above the junior high school, it seems also to exert unfavorable influence (as in Quentin) upon schools which are housed apart from the senior high school. For the first type of school it indicates need for the development of closer relationships between separate junior high schools and senior high schools in adjacent communities ; for the second type it offers a strong argument in favor of the combined junior-senior high school organization.

Apparent Neglect of Bright Pupils. — Data are available for only seven of the eleven schools offering promotion by subject, as to the number of junior high school pupils benefiting by such promotion during the current year. The figures obtained are given in Table XIII. In Raleigh and Parker the pupils represented by these figures were doing a limited amount of work with the grade above that in which they were regularly enrolled. In the other schools these pupils were without exception "repeaters." Five of the seven schools, in other words, were providing through promotion by subject only for backward pupils, and not for those who could profit by more rapid progress than the average.

Other Types of Provision for Exceptional Pupils. — Similar attention chiefly to retarded pupils is to be observed in the other types of provision for exceptional pupils found in the nineteen schools. Thirteen of these schools, in addition to those offering promotion by subject alone, are reported as making regular arrangements for special help to pupils. The various methods by which such help is offered are summarized in connection with Table XIII.¹ It is to be noted that in two cases only — again in Parker and Raleigh — is attention directed specifically to the needs of advanced pupils. Though Eastwood and Gordon make such attention possible by approximate ability-groupings in one or more subjects, emphasis would seem to be placed in these schools chiefly on the needs of the poorer groups.

The fact that not all of the schools make regular provision (outside of individualized classwork) for special aid to exceptional pupils is due in part, of course, to the individual attention made possible by unusually small classes. It is apparently due also to the fact that in nearly all these schools such special help must be given by the regular classroom teachers. Quentin alone has been able to provide an unassigned teacher for study-coach work. In the other schools the burdens imposed by special coaching upon teachers who are already carrying very heavy class-loads are such

¹ It is of interest to observe that in promotion by subject, study-coach work, organization of special classes, use of a floating teacher, and division of classes, we find in these small schools practically all the means commonly used by large schools in meeting the problem.

as to demand careful weighing of the relative values involved. The practice in these Massachusetts schools would seem to show that the small school *can* make administrative provision for special aid to individual pupils, and that the great majority do make such provision; but it is offered in almost every case at the cost of imposing additional teaching loads upon already heavily burdened teachers.

Summary. — Despite apparent lack of attention to the needs of above-average pupils, conclusions with respect to administrative provision for the pupil who progresses at a rate different from the average must be less unfavorable than purely theoretical consideration would suggest. Though a complete system of promotion by subject is impracticable, special adjustments allow a limited number of individual promotions on this basis even in the very small school. Where such promotions cannot be arranged, the wide use of study-coach work and special classes in the Massachusetts schools suggests other feasible methods of attack on the problem. Any one of these methods is likely to prove of greater advantage, in the opportunities which it offers for continuous progress at a rate different from the average, under the junior-senior high school organization than in the separate junior high school.

General Summary. — The conclusions of this section have been based in part on theoretical considerations of the limitations imposed by a small teaching staff, in part on study of practice in the small Massachusetts junior high schools. Those conclusions drawn from theoretical analysis may be summarized as follows:

- I. The number of teachers necessary in a given school must be determined by (a) the average class-enrollment which is to be maintained, (b) the number of grade-sections provided, (c) the average teaching load required, and (d) the extent to which study-pupils are supervised. The number of teachers necessary is affected also by specific problems in schedule-making in a given school.
- A. For the purposes of this study, the following are assumed as standard:

1. An average class-enrollment of twenty-five pupils.
 2. Grade-sections of not more than thirty-five pupils each.
 3. A teaching load for academic teachers of not more than thirty periods, and for non-academic teachers of thirty-five periods or fewer, in a week of thirty-five periods.
 4. The assignment of one teacher to each recitation- or study-class provided for in the daily schedule.
- B. Employment of these standards makes it possible to estimate the numbers of teachers necessary in schools of various sizes.
- II. Estimates based on these standards lead to the following conclusions with respect to departmental teaching in the small junior high school:
- A. Gradually increasing departmentalization of teaching is possible only to the three-year school which can avail itself of at least five teachers, or to the two-year school which can avail itself of at least four teachers.
 - B. The separate three-year junior high school drawing its teachers only from its own staff must have an enrollment of at least 110 pupils if it is to provide such departmentalization on an economical basis. The separate two-year school must have an enrollment of at least 90 pupils to allow such provision to be made economically.
 - C. Three-year junior high schools enrolling fewer than 110 pupils, and two-year junior high schools enrolling fewer than 90 pupils, must combine with elementary or senior high schools if they are to provide adequate departmentalization.
 1. Use of elementary-school teachers for junior high school work offers so many disadvantages as to be inadvisable on any large scale.
 2. The junior-senior high school combination will in general make possible adequate departmentalization in the junior high school if the staff of the combined schools includes five or more teachers.
 - D. Junior high schools of greater enrollments than 90 or 110 pupils will find the junior-senior high school organization of advantage in providing departmental teaching.
 - E. Schools unable to provide adequate departmentalization may find themselves obliged to curtail their programs of studies.

- III. The following conclusions are offered with respect to promotion by subject:
- A. For the junior high school enrolling fewer than 60 pupils per grade, provision for a complete system of promotion by subject, even through combination of the teaching staff with that of the senior high school, will rarely be possible on any economical basis.
 - B. The problem of arranging promotion by subject in the three-year school of fewer than thirteen teachers, or in the two-year school of fewer than eight teachers, becomes one of adjusting the schedule to the needs of specific pupils. The necessary adjustment may need to be accomplished through
 1. Partial abandonment of departmental teaching.
 2. Promotion by pairs of subjects.
 3. Scheduling the "major" classes of one grade in parallel with "minor" classes of the grade preceding or following.
 - C. The junior-senior high school organization is of definite advantage in providing for promotion by subject.
- IV. A limited teaching-staff affects provision of extra-curricular activities chiefly through curtailment of the range and value of club work. Remedy for such curtailment is in a measure attainable through the junior-senior high school organization.
- V. The conclusions here advanced are based on relatively liberal estimates of the number of teachers which an economically administered school may be expected to provide. Lowering of the standards adopted means increased limitations with respect to departmental teaching, promotion by subject, and club activities.

Study of conditions in the small Massachusetts junior high schools makes possible the following conclusions:

- I. Though eleven of the nineteen schools have teaching-staffs large enough to insure adequate teaching conditions if their classes were organized on a twenty-five-pupil basis, only one has a sufficient number of teachers to allow standard conditions with the class-enrollments actually attained.
- II. Shortage of teachers has made necessary a sacrifice in the average teaching loads assigned and in the extent to which study-pupils are supervised. The schools have in general

preferred sacrifice of study-supervision to the increase of teaching loads.

- A. No school offers a complete system of study-supervision.
 - B. The mean teaching load in terms of hours per week is appreciably above the standard. The pupil-load approaches the accepted maximum of 210 in only two schools.
- III. The schools have apparently attempted to provide as much departmental organization as possible. Great inconsistencies are found, however, in the assignment of subjects to individual teachers. Slight attention has been paid in many cases to provision of gradual transition from elementary school to senior high school.
- A. Departmental teaching is more extensive in junior-senior high schools than in separate junior high schools of approximately the same enrollments.
 - B. There has been in general less departmentalization than is theoretically desirable, owing chiefly to the small numbers of teachers available.
 - C. Limited teaching-staffs have apparently operated to curtail subject-offerings in at least the smallest of the schools.
- IV. Limited systems of promotion by subject are found in eleven of the nineteen schools. In nine of the schools these systems serve the needs of retarded pupils only.
- A. Lack of administrative articulation with senior high schools tends to prevent promotion by subject in separate junior high schools.
- V. Other types of aid for exceptional pupils are found in thirteen schools. With one exception, these schools are obliged to add the duties involved to the teaching loads of their regular teachers. The types of special assistance most commonly found are
- A. Study-coach work before and after school, for retarded pupils.
 - B. Detention or "deficiency" classes.

CHAPTER VII

DIFFICULTIES RELATING TO THE QUALIFICATIONS OF TEACHERS

Nature of Possible Conclusions as to Teachers' Qualifications. — In considering the restrictions placed on the work of the small junior high school by limited enrollment and limited teaching staffs, we have been able to base our conclusions in large measure on a study of the necessary mathematical relationships between these factors and the administrative organization of the school. Qualifications of teachers, the supervision of instruction, and the type of housing and equipment available do not lend themselves to analysis on any such absolute basis. Neither their origin nor their effect can be computed in strictly mathematical terms. The extent to which the small school may be handicapped by them, moreover, cannot be determined for all schools alike; it will vary according to factors not immediately related to the size of the school. Hence such conclusions as we may draw must be based rather on a study of conditions as we find them than on a theoretical consideration of possibilities. Since the conditions at present available for our examination are those of small schools in Massachusetts alone, our conclusions will be applicable to the small junior high school in general only in so far as Massachusetts schools are representative of those in the country at large.

Our interpretation of the difficulties of the small school arising from the qualifications of its teachers must include, furthermore, a recognition of the probably transitory nature of present conditions. The type of teachers employed by a given community is determined only in part by the funds available for salaries; it is still more largely established by the training offered by normal schools and schools of education, and by the immediate supply of competent persons. The possibilities of the small junior high school should therefore not be measured entirely by conditions as we now find them. Growing attention to junior high school

problems, a greater supply of adequately trained teachers, and increasing centralization of schools in small communities, offer promise of steady improvement. A consideration of present conditions is chiefly valuable as it throws light upon immediate problems in organization and makes possible certain conclusions as to desirable practice.

Data gained from the Massachusetts schools allow us to consider in general terms the academic and professional training of teachers in these schools, and their previous teaching experience.

Standards for Judging Teachers' Training. — Exactly how much training and what specific type of training are essential to successful junior high school teaching we have no present means of knowing. We lack information in particular as to the desirable preparation of teachers of non-academic subjects. As to the training of academic teachers we can probably do no better in establishing an immediate standard than to adopt that set up by the Junior High School Committee of the North Central Association. The requirements of the Association for preparation of teachers in its "standard" junior high school are as follows:

"4. The minimum academic training of two-thirds of the junior high school teachers of academic subjects shall be equivalent to graduation from a college or university accredited by the North Central Association which requires for graduation one hundred and twenty hours in advance of a four year high school course. The remaining one-third should be teachers of good training, experience, and maturity . . .

"5. The minimum professional training of new junior high school teachers after 1926 should be that required of senior high school teachers" (*i.e.*, graduation from an approved college, with training which includes fifteen semester-hours in education) . . .¹

Training of Teachers of Academic Subjects. — Data respecting the training of teachers of academic subjects are presented in Table XIV. Consideration of the nineteen schools as a group shows that only slightly over half the total number of teachers are graduates of colleges of recognized standing. No more than

¹ North Central Association of Colleges and Secondary Schools: "Report of the Junior High School Committee." *Proceedings*, 1925: Part I, p. 67.

seven of the schools have been able to provide teaching staffs in academic subjects of which at least two-thirds the members are college graduates; five schools have less than half their staffs composed of college-trained teachers; and two schools (Nestor and Oakwood) have no such teachers.

Judgment of these schools by the North Central Association standards thus yields somewhat disappointing results, though the academic training of a large proportion of the teachers is obviously far superior to that ordinarily provided in the seventh and eighth grades, at least, under the traditional eight-four organization. But the attempt to assure possession of an adequate academic background by even as many as half the teachers has in many cases resulted in a serious sacrifice of professional training. Of the forty-one teachers who meet the minimum requirements as to academic education, sixteen — nearly two-fifths — have had no professional training whatever. Eight of the remaining twenty-five have gained their professional preparation through miscellaneous extension or summer-school courses only, so that hardly more than two out of five of the college graduates may be considered to have had definite and systematic training for teaching. It is therefore not surprising that but two of the nineteen schools — Jackson and Tarbell — have been able to meet the minimum standards as to both academic and professional training for as many as two-thirds of their teachers.¹

Specific Training for Junior High School Work. — The seriousness of this situation is increased by the lack even among the normal-school graduates of specific training for junior high school work. Though the latter group have all had general professional education, we find among them but twelve who have received such special training; and of the eighty teachers as a group, only a little more than one in four have taken even a single course dealing specifically with junior high school problems. When we consider that fewer than three in five of the principals responsible for the work of these schools have themselves had definite junior high school training, the difficulties which the small

¹ Statements in this and the following paragraph with respect to the details of training of specific teachers are based on information not presented in Table XIV.

TABLE XIV

TRAINING OF TEACHERS OF ACADEMIC SUBJECTS IN SMALL MASSACHUSETTS
JUNIOR HIGH SCHOOLS

(All teachers responsible for one or more academic classes in each junior high school are represented in this table.)

SCHOOLS	NO. OF TEACHERS	AMOUNT OF TRAINING								TYPE OF TRAINING			HAS PRINCIPAL HAD TRAINING FOR J. H. S.?	
		High Sch. Only	High Sch. and Ext.	Normal School ¹	Norm. Sch. and Ext.	College	College and Ext.	Both N. S. and Col.	N. S., Col., and Ext.	Non-Prof. Only	Professional	For J. H. S.	Yes	No
Arnold.....	7	—	—	1	3	1	2	—	—	1	6	0	X	
Benton.....	5	—	—	2	1	1	1	—	—	0	5	1	X	
² Corwin.....	6	—	—	—	2	4	—	—	—	3	3	1		X
Dexter.....	4	—	2	—	1	1	—	—	—	0	4	1	X	
² Eastwood.....	5	—	—	—	—	4	1	—	—	3	2	0		X
Fremont.....	5	—	—	2	—	2	1	—	—	1	4	3	X	
² Gordon.....	4	—	—	1	—	2	1	—	—	2	2	0		X
² Harlow.....	6	—	—	—	2	2	1	1	—	2	4	3	X	
³ Jackson.....	4	—	—	—	1	1	1	—	1	1	3	1		X
Knowlton.....	5	—	—	2	2	—	1	—	—	0	5	3	X	
Lundy.....	4	—	—	—	2	1	—	1	—	0	4	2	X	
Mason.....	4	—	—	—	2	—	—	2	—	0	4	4	X	
Nestor.....	4	—	—	—	4	—	—	—	—	0	4	1	X	
Oakwood.....	3	—	2	—	1	—	—	—	—	0	3	1	X	
Parker.....	2	—	—	1	—	—	1	—	—	0	2	0		X
Quentin.....	4	—	—	2	1	1	—	—	—	1	3	0		X
² Raleigh.....	4	—	—	1	—	3	—	—	—	1	3	0		X
Selden.....	2	—	—	—	1	1	—	—	—	1	1	1	X	
³ Tarbell.....	2	—	—	—	—	2	—	—	—	0	2	0		X
Total.....	80	0	4	12	23	26	10	4	1	16	64	22	11	8
Per cents.....	100	0	5	15	29	32	13	5	1	20	80	28	58	42

school must face in adapting its methods and materials of instruction to junior high school standards become even more evident.⁴

¹ No distinction is here made as to the length of the normal-school course. In the majority of cases it has been one of three years.

² Standard of academic training attained for two-thirds of staff.

³ Standard of both academic and professional training attained for two-thirds of staff.

⁴ It is of interest, and possibly of some significance, that all but two of the teachers who have had definite training for junior high school work are found in schools whose principals have had such training. The professional viewpoint of the schools' supervisory officers is apparently of considerable importance in this connection.

Extension Study. — Slight encouragement is to be gained, moreover, from the fact that approximately half the teachers (thirty-eight out of eighty) have been able to extend their training through short-time courses offered by the State Department, university extension, or professional summer schools. The figures here given relate to such courses — both academic and professional — taken by teachers at any time after the conclusion of their formal education. Though a large number of the teachers are so young in service as to have had little or no opportunity for extension study,¹ the omission of new teachers from the total group would show that hardly more than two-thirds of the remaining number have availed themselves since graduation from college or normal school of this opportunity for growth. The remoteness of many of the small schools from centers where study is possible, the lack of professional stimulation from varied contacts with other teachers, the possible absence of rigorous professional standards, the expense involved in work away from home, all tend to lessen even the normal incentive to further study. Hence the sparse data which we have relating to the recency with which extension courses have been pursued seem to indicate that supplementary study represents for most teachers in these small schools merely an occasional venture rather than a consistent and definitely planned effort toward professional improvement.

Evidences of Definite Policy in Selecting Teachers. — A study of Table XIV to discover evidences of definite policy with respect to the selection of teachers yields little result so long as each school is considered by itself. Eastwood and Tarbell would seem to have adopted college graduation as one of their criteria for the choice of teachers, and Nestor employs only teachers who are normal-school graduates; but the remaining schools considered separately show no clear indications of special requirements other than that, in most cases, of education beyond the high school. Their policy in general is apparently one of securing teachers of the best possible qualifications at the salaries available. In so doing they are in many cases obliged to choose, as our previous

¹ See Table XVI.

discussion has indicated, between teachers who have had professional training but who lack the minimum desirable academic education, and college graduates who have had little or no professional preparation.

Combined Schools and Separate Schools Compared.—If we group the combined junior-senior high schools and the separate junior high schools, however, and summarize the types of training received by the teachers in each group, a number of noteworthy differences become evident. The results of this grouping are presented in Table XIVa.

TABLE XIVa

TRAINING OF TEACHERS OF ACADEMIC SUBJECTS IN JUNIOR-SENIOR HIGH SCHOOLS
AND IN SEPARATE JUNIOR HIGH SCHOOLS COMPARED

	NO. OF TEACHERS	AMOUNT OF TRAINING								TYPE OF TRAINING			HAS PRINCIPAL HAD TRAINING FOR J. H. S.?	
		High Sch. Only	High Sch. and Ext.	Normal School	Normal Sch. and Ext.	College	College and Ext.	Both N. S. and Col.	N. S., Col., and Ext.	Non-Prof. Only	Professional	For J. H. S.		
													Yes	No
<i>Number</i>														
Combined Schools . . .	40	0	2	7	7	18	6	0	0	11	29	6	4	4
Separate Schools . . .	40	0	2	5	16	8	4	4	1	5	35	16	7	4
<i>Per cents</i>														
Combined Schools . . .	100	0	5	17½	17½	45	15	0	0	27½	72½	15	50	50
Separate Schools . . .	100	0	5	12½	40	20	10	10	2½	12½	87½	40	64	36

It is to be observed, first, that the proportions of normal-school graduates and college graduates vary widely between the two types of schools. 60% of the teachers in the combined schools are college graduates and 35% normal-school graduates, as compared with 42½% of college graduates in the separate schools and 52½% of teachers who have received normal-school training only. Of the five teachers who have received both normal-school and college training, all are found in the separate schools. These differences are reflected in the proportions of teachers in each type of school who have received no professional training. More

than one of every four of the junior-senior high school teachers lacks such training; only one in eight of the separate junior high school teachers has had academic training only. Of the total number of teachers in each type of school, moreover, nearly three times as great a proportion of the separate junior high school teachers as of teachers in the combined schools have received specific training for junior high school work; and nearly two-thirds the separate-school principals, as contrasted with one-half the combined-school principals, have had such training.

There is a difference also in the extent to which teachers in the two types of schools have availed themselves of extension education. $57\frac{1}{2}\%$ of the separate-school teachers, and only $37\frac{1}{2}\%$ of the teachers in the combined schools, have had such training. Though this difference may possibly indicate greater realization on the part of the former group of the need for continued professional study, it is probably due in much larger measure both to the efforts of the normal-trained teachers to secure the equivalent of full college education, and to the fact (which will become clearly apparent later¹) that the combined schools provide a much greater proportion than do the separate schools of teachers whose brief terms of service have afforded little opportunity for such training.

That these differences are a necessary consequence of the type of organization adopted by each group of schools cannot be maintained. Examination of Table XIV will show that the training of teachers in almost any one of the schools of one type may be practically duplicated in the training of teachers in at least one school of the other type. The total number of schools considered is so small, moreover, that the differences may be due purely to chance.² But the fact that they exist in clearly distinguishable

¹ See page 112.

² Computed according to Yule's formula for the standard error of difference in cases of simple sampling of attributes (*An Introduction to the Theory of Statistics*, p. 269 — Lippincott, 1924), the standard error of difference in the present instance is approximately 11%. The greatest observable difference is only 20% — less than twice the standard error. Since a difference must be at least three times as great as the standard error in order to be considered statistically significant, no sound conclusion can be based on the mere fact that these differences occur in this specific group of schools.

form suggests the possible operation of factors which tend to produce such differences. The junior high school organized in conjunction with the senior high school is likely to be subject to senior high school traditions with respect to selection of teachers — traditions which emphasize academic background rather than professional training. The separate junior high school frequently has more or less direct contact with the elementary school.¹ Its lack of contact with the senior high school, furthermore, may lead to a classification of its work in the eyes of many teachers as elementary rather than secondary; so that, aspiring to high-school positions, they decline appointments to this type of school.² Hence we are likely to find in the separate school a greater insistence on professional training, which may account both for the larger proportion of normal-school graduates as teachers and for the greater number of teachers trained specifically for junior high school work.

Training of Teachers of Non-Academic Subjects. — Data with respect to the training of teachers of non-academic subjects are presented in Table XV. Since the organization of the larger schools alone permits the assignment to one or more teachers of non-academic subjects only, representation in this table comes chiefly from the combined schools. The small number of separate teachers of non-academic subjects makes impossible any comparison of value between separate and combined schools.

Owing to the special nature of the instruction offered by these teachers, practically all have been obliged to obtain professional training. The two exceptions consist in teachers of physical training in Arnold. None, however, has been trained specifically for junior high school work. In the case of these non-academic teachers the high-school tradition apparently does not so strongly apply, since even in the junior-senior high schools the large majority are normal-school rather than college graduates.

¹ All but two of the separate Massachusetts schools occupy buildings with elementary grades.

² Differing salary scales apparently exert no marked effect in the Massachusetts schools; the averages for the two types of schools are very nearly the same. (See Table XVIa.)

TABLE XV

TRAINING OF TEACHERS OF NON-ACADEMIC SUBJECTS IN SMALL MASSACHUSETTS
JUNIOR HIGH SCHOOLS

(This table includes only teachers whose work is wholly in non-academic subjects — physical training, practical arts, and commercial education.)

SCHOOLS	NO. OF TEACHERS ¹	AMOUNT OF TRAINING								TYPE OF TRAINING		
		High Sch. Only	High Sch. and Ext.	Normal School	Norm. Sch. and Ext.	College	College and Ext.	Both N. S. and Col.	N. S., Col., and Ext.	Non-Prof. Only	Professional	For J. H. S.
Arnold.....	4	—	—	1	—	2	1	—	—	2	2	0
Dexter.....	4	—	—	4	—	—	—	—	—	0	4	0
Fremont.....	1	—	—	—	—	1	—	—	—	0	1	0
Gordon.....	1	—	—	1	—	—	—	—	—	0	1	0
Harlow.....	1	—	—	—	1	—	—	—	—	0	1	0
Jackson.....	1	—	—	—	1	—	—	—	—	0	1	0
Nestor.....	1	—	—	1	—	—	—	—	—	0	1	0
Totals.....	13	0	0	7	2	3	1	0	0	2	11	0
Per cents.....	100	0	0	54	15	23	18	0	0	15	85	0

Before considering the effect of these conditions as to teachers' training on the work of the small junior high school, it will be well to give attention to certain other aspects of teachers' qualifications. Table XVI presents data with respect to the sex, previous experience, and salaries of teachers in the small Massachusetts schools.

Sex of Teachers. — In the nineteen schools as a group, approximately one-fourth of the teachers with whom pupils come in daily contact are men. Four schools only have no men teachers on their "regular" staffs, and of these four one has a male supervisor in charge of its manual training. Though the proportion of teaching by men is on the whole not high, there has been evident and reasonably successful effort on the part of these schools to give junior high school pupils some contact with men instructors.

¹ Exclusive of supervisors of special subjects.

Previous Experience. — Classification of teachers according to previous experience yields an interesting result. The summaries for the nineteen schools as a group show that one teacher in seven in these schools is in his or her first year of teaching. Over half

TABLE XVI

SEX, PREVIOUS EXPERIENCE, AND SALARIES OF TEACHERS IN SMALL MASSACHUSETTS JUNIOR HIGH SCHOOLS

SCHOOLS	SEX		PREVIOUS EXPERIENCE									SALARIES ¹		
	M	F	None	1 Year	2 Years	3 Years	4 Years	5 Years	6-10 Years	Over 10 Years	Highest	Lowest	Average	
Arnold.....	4	7	1	1	2	1	—	—	3	3	\$2500	\$1400	\$1836	
Benton.....	1	4	2	1	—	1	—	—	1	—	1300	1000	1100	
Corwin.....	2	4	1	1	1	1	—	—	1	1	1300	1200	1250	
Dexter.....	1	7	1	1	1	2	—	1	—	2	1600	1250	1425	
Eastwood....	1 ²	4	1	—	—	—	1	—	—	3	1700	1200	1400	
Fremont....	2	4	—	1	3	1	—	—	—	1	1600	1200	1360	
Gordon.....	3	2	2	2	—	—	—	—	—	1	1400	1300	1333	
Harlow.....	2	5	—	1	1	—	—	1	2	2	2200	1350	1658	
Jackson.....	2	3	—	2	1	—	—	—	—	2	1700	1400	1525	
Knowlton...	1 ²	4	1	—	—	1	3	—	—	—	1450	1000	1300	
Lundy.....	1 ²	3	—	1	1	—	—	2	—	—	1400	1300	1360	
Mason.....	1 ²	3	—	—	—	1	—	1	2	—	1500	1400	1467	
Nestor.....	1	4	1	—	1	—	—	1	—	2	1600	1400	1525	
Oakwood....	0 ²	3	—	—	—	—	—	—	—	3	1144	1125	1135	
Parker.....	0	2	1	—	—	—	—	—	—	1	—	1100	1100	
Quentin.....	0	4	—	1	—	—	—	—	—	3	1200	1150	1187	
Raleigh.....	1	3	2	1	—	—	—	—	1	—	1625	1100	1281	
Selden.....	0	2	—	—	—	—	—	1	—	1	—	1400	1400	
Tarbell.....	1	1	1	1	—	—	—	—	—	—	—	1000	1000	
Totals....	24	69	14	14	11	8	4	7	10	25				
Per cents..	26	74	15	15	12	9	4	7	11	27				
Median Salaries.....												\$1550	\$1250	\$1360

have had only three years of experience or less; more than one-fourth have taught for over ten years. There is an overwhelming preponderance, in other words, of relatively inexperienced teachers on the one hand, and of teachers who have taught so

¹ Salaries of teaching principals are not included.

² Additional male teacher as supervisor of boys' shopwork.

long as to throw suspicion on their adaptability to junior high school work on the other. The tendency for teachers to fall into one or the other of these two groups is marked in all the schools, but it becomes especially apparent in the schools of very limited enrollment.

Salaries. — The salaries of the teachers, though yielding only an indirect measure of teaching qualifications, afford both a partial explanation of differences in qualifications of teachers in different schools, and a general basis for estimating the type of teaching service obtainable. It is not our purpose to consider them in detail. We may well call attention, however, to the range between the highest average salary (\$1836) and the lowest (\$1000) paid in these schools, as an indication of the difference in teaching service to be expected; and to the fact that there is a clear relation between average salaries paid and the extent to which teachers fall into the inexperienced and over-experienced groups previously mentioned.

Combined Schools and Separate Schools Compared. — The differences between the junior-senior high schools and the separate junior high schools in teachers' sex, previous experience, and salaries are less striking than in the matter of training. These differences are shown in the summaries presented in Table XVI^a.¹ The most noteworthy variations are those in the proportions of men teachers employed and in the general distributions of teachers according to experience. The combined schools employ approximately three men teachers for every two in the separate schools. Of the total number of teachers in the combined schools, somewhat more than one-third have had less than two years of experience and a little more than one-fifth are teachers of over ten years' experience, whereas in the separate schools one teacher in three has had over ten years of experience, and slightly fewer than one in five has had less than two years' experience.

That these differences are due only in part to the salaries paid seems to be indicated by the median highest, lowest, and average

¹ As in the case of differences in teachers' training between the two groups of schools, the differences here observable are too small to permit them to be considered statistically significant.

TABLE XVI_a

SEX, PREVIOUS EXPERIENCE, AND SALARIES OF TEACHERS IN JUNIOR-SENIOR HIGH SCHOOLS AND IN SEPARATE JUNIOR HIGH SCHOOLS COMPARED

	SEX		PREVIOUS EXPERIENCE								SALARIES ¹		
	M	F	None	1 Year	2 Years	3 Years	4 Years	5 Years	6-10 Years	Over 10 Years	Highest	Lowest	Average
<i>Number</i>													
Combined Schools...	15	35	10	8	7	6	1	1	6	11	\$1600	\$1200	\$1347
Separate Schools...	9	34	4	6	4	2	3	6	4	14	1475	1300	1360
<i>Per cents</i>													
Combined Schools...	30	70	20	16	14	12	2	2	12	22			
Separate Schools...	21	79	9	14	9	5	7	14	9	33			

salaries for the two groups of schools. The higher maximum salaries paid as a rule in the junior-senior high schools may account for the greater proportions of men teachers employed; but the fact that the average salaries for the two groups of schools are approximately the same demands some other explanation for the differences in teachers' experience. This difference, like that of training, is doubtless to be traced to the varying traditions which affect the two types of schools. The combined schools, demanding teachers of longer training than the majority of those employed in the separate schools, and offering in general no higher salaries, must make greater sacrifices in the matter of the previous experience of their teachers.

Summary. — Briefly summarized, the facts with respect to the qualifications of teachers in the small Massachusetts schools are these: that few of the teachers have been prepared specifically for junior high school work; that those teachers who have had adequate academic education are likely to have received little

¹ Medians of figures given in Table XVI for each type of school.

professional training; that in most cases teachers whose general professional training has been complete lack a desirable academic background; that men teachers are found in nearly all the schools, though the very large majority of the total number of teachers are women; and that there is an overwhelming preponderance of relatively inexperienced teachers and of teachers who have had almost too much experience. As between the junior-senior high schools and the separate junior high schools, the former employ as teachers a greater proportion of college graduates, but a much smaller proportion of teachers who have had professional training; they employ also a greater proportion of men teachers and of teachers of very brief experience. The separate schools have in their favor the employment of a far larger proportion of teachers who have had professional training — especially of teachers who have received training specifically for junior high school work.

Effects of Teachers' Qualifications on the Work of the Schools. — The effects of these various conditions on the ability of the small school to attain the objectives of the junior high school reorganization become most evident if we consider separately the specific results of lack of professional training, lack of desirable academic background, provision of women teachers only, and insufficient or inappropriate experience in teaching.

Lack of Professional Training. — Lack of professional training places direct handicap on the junior high school's attempt to introduce methods of instruction adapted to the needs of adolescent pupils. It is almost certain to imply lack of understanding of the purposes underlying the "general" courses of the junior high school and of the special methods of teaching demanded, and thus to prevent the effective organization of such courses. It tends to produce ineffective supervision of study or total absence of such supervision, the use of more or less autocratic and dictatorial teaching methods instead of the desirable socialization of procedure, and an emphasis on mere absorption of facts rather than on the growth in ability to think and to do which the problem-project method is in part intended to promote. It is likely to result, furthermore, both in less accomplishment on the

part of pupils than should normally be expected, and in a less wholesome attitude toward the school, owing to the teachers' lack of familiarity with the methods by which pupils learn and with effective methods of motivating their learning. Hence also it is likely to result in inadequate attention to the special interests and needs of individual pupils. Since professionally untrained teachers are unacquainted with the technical tools of education, there can be at best only a very superficial use of the various objective measures of accomplishment and but little careful and scientific evaluation of pupils' achievement. Extra-curricular activities must suffer, moreover, through teachers' lack of thorough understanding of the educational purposes of such activities and of the special techniques involved. The type of guidance which is afforded is likely to be ineffective or inappropriate for similar reasons. The work of the school is handicapped, in other words, in the very directions in which the objectives of the reorganization and the means of attaining those objectives are most nearly inseparable.

Though provision of a general professional training for junior school teachers (including training directed primarily toward elementary or senior high school work) is far better than lack of any professional training, it still presents serious disadvantages as compared with training which prepares specifically for junior high school teaching. Failing to equip teachers for the specific problems which are to confront them, it places a measure of handicap upon the school in all the directions suggested above. Though the problems of teaching method involved in supervision of study, the introduction of socialized classwork, the employment of the problem-project method, and the effective use of measurement in teaching may have been approached in such general preparation, certain methods pertaining especially to junior high school work are almost certain to have been neglected. These include the special techniques involved in the teaching of "general" courses, in the conduct of extra-curricular activities, and in the guidance of individual pupils — matters of the highest importance in the work of the school.

Lack of Desirable Academic Training. — Lack of the desirable

background of academic training makes it difficult, and in many cases impossible, for teachers to introduce their pupils to the broad fields of interest to which the junior high school should point the way, or to stimulate and direct specialized interests which are beginning to take form. It affects both the curricular work of the school and the conduct of extra-curricular club activities. With respect to the former it tends to limit classwork to a rigid following of the subject matter outlined in the prescribed textbook, robbing the "general" courses in particular of the spontaneity and breadth of interest which should be among their characteristics. Club-work also it is likely to limit to a marked degree, preventing both the formation of a great variety of clubs and the specialization of interest and activity which may be desirable within any single club. Its effect is thus to restrict the work of the school to narrow, rigid, and formal lines, making impossible adequate provision for pupils' individual differences in interests, abilities, and needs.

Failure to Provide Men Teachers. — Failure to include one or more men teachers on the junior high school staff affects the value of the school's work particularly for boys, but to some extent also for girls. It prevents the type of provision for the social and ethical needs of adolescent boys which none but a man who has himself experienced such needs can give. For boys and girls both it means restriction of the development of valuable interests and insight because of the lack of masculine viewpoint in the work of the school. Its effect is exerted upon curricular and extra-curricular activities alike, limiting the possibility of provision for individual needs and interests and affording no specific provision for the tremendously increased contact with men which must come to all pupils after the conclusion of their secondary-school work.

Inadequate Experience. — Insufficient or inappropriate professional experience obviously tends to limit the value of the school's work along every one of the lines which have been discussed. Its effects may of course be in part counteracted by well-planned supervision, but it must of necessity weigh heavily against the efficiency of the school.

General Conclusions. — In the light of the effects of these various factors, we may offer certain tentative conclusions as to the ability of the small Massachusetts schools to afford the type of training generally agreed upon as desirable. With few exceptions the schools can provide a measure of the desirable experience which comes from work under men teachers. As compared with large junior high schools, however, they are without exception seriously handicapped in their provision of the "general" courses of the junior high school and in the conduct of extra-curricular activities — especially club activities. The effectiveness of their work tends to be limited in all respects by the inexperience or inappropriate experience of their teachers. The junior-senior high schools are in addition generally unable to employ in any complete or consistent measure those special methods of teaching and of guidance by which the large junior high school attempts to adapt its work to the interests, abilities, and needs of individual pupils. The separate schools, though finding it possible to obtain better teaching technique, are unable to make provision for the broad range of experiences which junior high school pupils should have.

Conclusions Based on Observation of Teaching. — Such are the presumptive effects of their teachers' training and experience upon the work of the small Massachusetts junior high schools. Concerning the actual efficiency of instruction in these schools we have, unfortunately, no objective data. Direct observation of various types of classroom work in sixteen of the nineteen schools tended in the main to confirm these conclusions. This observation revealed a general tendency, first, toward methods better adapted to the interests and maturity either of senior high school or of elementary school pupils than of junior high school pupils, and second, toward largely formal and bookish methods of teaching. Taken as a whole, the classes visited displayed little of the method or spirit of instruction commonly associated with the junior high school.

There proved, however, to be a number of exceptions to the general conclusions, in the case of teachers who were doing more or less independent and original work in shaping subject matter

and methods of instruction to the specific needs of their pupils. Among this group were several whose ability was of a high order.¹ The work of nearly all the teachers visited, furthermore, seemed to be inspired by a very real interest — though an interest usually not accompanied by complete understanding — in the purposes of the junior high school reorganization. So strong was this interest that the work observed was in very few cases definitely poor, and judged by traditional standards rather than by the more recently developed criteria it seemed in many instances to be well above the average level of merit. It was, indeed, such as to indicate possibilities of valuable development under purposeful and skillful supervision.

¹ At least two of these were married women teachers of long experience and exceptional skill, who had accepted relatively low-salaried positions in the local schools because of the opportunity offered for carrying on work in which they were wholeheartedly interested. Whatever may be the arguments against the employment of married women in city school systems, schools of the type here studied will apparently do wisely to set up no blanket restrictions against their appointment.

CHAPTER VIII

DIFFICULTIES RELATING TO SUPERVISION

Special Need for Expert Supervision in Small Schools. — The inexperience of a large proportion of the teachers in small Massachusetts junior high schools, their general lack either of adequate professional training or of a desirable academic background, and their further lack of direct training for junior high school work, all make especially important the provision of purposeful, systematic, and intelligent supervision in these schools. With such supervision there is reason to believe that many of the handicaps resulting from the inadequate qualifications of teachers may be lessened, if not completely overcome. Without it there can hardly be any considerable approach to a realization of junior high school objectives. It is important, therefore, that we consider in some detail the qualifications of the immediate supervisory officers of these schools for their work.

Limitations of the Present Study. — Because of necessary limitations of the scope of the present investigation, we are forced to center attention in this connection on the work only of the principals of the schools concerned. The character of the supervision afforded by supervisors of special subjects and by the superintendents of schools (who appeared in a number of cases to devote much time and attention especially to the work of the junior high school) unfortunately cannot be taken adequately into account. We must base our conclusions to a considerable extent, furthermore, on such measures of principals' qualifications as have already been used with respect to teachers. In presenting the types of administrative organization found in the various schools we have, it is true, supplied information which allows a degree of direct evaluation of principals' efficiency. We shall find it possible, moreover, to consider certain additional data of the same general nature. But the absence of generally accepted standards of administrative procedure.— especially for the small

school — compels us to rely chiefly upon indirect measures. In view of all these limitations it should be recognized at the outset that any conclusions which we may draw are of necessity based on partial data only.

TABLE XVII

QUALIFICATIONS OF PRINCIPALS OF SMALL MASSACHUSETTS JUNIOR HIGH SCHOOLS

SCHOOLS	AMOUNT OF TRAINING								TYPE OF TRAINING			SEX		EXPERIENCE							
	High Sch. Only	High School and Ext.	Normal School	Norm. Sch. and Ext.	College	College and Ext.	Both N. S. and Col.	N. S., Col., and Ext.	Non-Prof. Only	Professional	For J. H. S.	M	F	None	1 Year	2 Years	3 Years	4 Years	5 Years	6-10 Years	Over 10 Years
Arnold						X			X	X	X	X									X
Benton						X			X	X	X	X									
Corwin					X			X	X	X	X	X					X				
Dexter						X ¹			X	X	X	X									
Eastwood					X			X	X	X	X	X							X		X
Fremont						X			X	X	X	X				X					
Gordon					X				X	X	X	X		X							
Harlow						X			X	X	X	X									X
Jackson						X			X	X	X	X									X
Knowlton						X ¹			X	X	X	X					X				
Lundy							X		X	X	X	X									
Mason				X					X	X	X	X				X				X	
Nestor				X					X	X	X	X									X
Oakwood	X								X	X	X	X	X								X
Parker						X			X	X	X	X	X								X
Quentin				X					X	X			X								X
Raleigh					X				X		X	X						X			
Selden				X						X			X								
Tarbell					X					X		X			X						X
Totals	0	1	0	4	5	8	1	0	4	15	11	14	5	0	2	1	2	3	0	2	9
Per cent	0	5	0	21	27	42	5	0	21	79	53	73	27	0	11	5	11	15	0	11	47

Qualifications of Principals. — Table XVII affords a view of the general qualifications of the principals of the nineteen Massachusetts schools.² Comparison of the summary of this table with that of Table XIV will show that their training as a group differs from that of the whole group of academic teachers in two signifi-

¹ Holds master's degree.

² Principals of all the schools except Arnold and Raleigh have teaching assignments in the junior high school. (See Table XVIII.) Their qualifications, with these two exceptions, have therefore been presented also with those of the regular classroom teachers in the various tables of Chapter VII.

cant respects: that 74% of the principals, as compared with 51% of the teachers as a whole, have had college training, and that more than half the principals, as compared with approximately one-fourth the teachers, have received special training for junior high school work. In the matter of general professional training the two groups parallel each other almost exactly, 79% of the principals and 80% of the whole group of teachers having had such training. The preparation of the principals, in other words, has in general been such as to give them a somewhat broader academic background than that of their teachers, and to fit them in many cases more directly for junior high school work.

With respect to sex and previous experience there are likewise important differences between the principals and the teachers as a group.¹ Approximately three-fourths of the principals, as compared with only one-fourth of the whole group of teachers, are men. Sex would thus seem to have played an important part in their selection. In terms of experience the principals are less clearly grouped at each end of the scale than are the teachers. Though approximately half have served as teachers or principals for over ten years, the remainder have had varying lesser amounts of experience. Their choice has apparently been less completely dictated in terms of under-experience or over-experience than has that of the teachers at large.

If we consider the nineteen principals together, then, we may fairly judge them a relatively select group, to the extent that in general training and experience they stand on the whole markedly above the teachers whose work they must direct. But lest in drawing this conclusion we lose sight of their absolute fitness for the principalship, it is important that we note the low standards which many of the principals attain. Ten principals only — approximately half the whole group — can meet the minimum requirements set by the North Central Association for academic and professional training in the case of classroom teachers newly appointed to junior high school work;² and only two of the ten have credit for a year of full-time study in advance of the bachelor's degree. Four of those who can meet the standards for

¹ See Table XVI.

² See page 103.

teachers in terms of academic preparation have had no professional preparation whatever. One principal has had no full-time education beyond the high school. Eight have received no direct training for junior high school work. At least two have had such brief experience as to make their service even as teachers fall far short of its maximum value. In the case of half the group there is every reason to believe that the criteria for their selection, superior though they may be to those forming the basis for the selection of classroom teachers in these schools, are inadequate to the needs of the junior high school.

Differences between Combined- and Separate-School Principals.—Differences in the training of teachers which we have observed

TABLE XVIIa

QUALIFICATIONS OF PRINCIPALS OF JUNIOR-SENIOR HIGH SCHOOLS AND OF SEPARATE JUNIOR HIGH SCHOOLS COMPARED

	AMOUNT OF TRAINING								TYPE OF TRAINING		SEX		EXPERIENCE								
	High Sch. Only	High Sch. and Ext.	Normal School	Norm. Sch. and Ext.	College	College and Ext.	Both N. S. and Col.	N. S., Col., and Ext.	Non-Prof. Only	Professional	For J. H. S.	M	F	None	1 Year	2 Years	3 Years	4 Years	5 Years	6-10 Years	Over 10 Years
Number Combined Separate	0 0	0 1	0 0	0 4	4 1	4 4	0 1	0 0	4 0	4 11	4 7	8 6	0 5	0 0	1 1	0 1	2 0	2 1	0 0	1 1	2 7
Per cent Combined Separate	0 9	0 9	0 0	0 37	50 9	50 36	0 9	0 0	50 0	50 100	50 64	100 55	0 45	0 0	12½ 9	0 9	25 0	25 9	0 0	12½ 9	25 64

between the junior-senior high schools and the separate junior high schools obtain also in the case of the principals. As shown in Table XVIIa, all of the combined-school principals, as compared with approximately half the separate-school principals, are college graduates. But though all the former group have had the desirable minimum (for teachers, at least) of academic training, only half have had any professional training whatever. The separate-school principals, in contrast, have in every instance received professional training, and in two-thirds of the cases a

certain amount of preparation directly for junior high school work. The combined-school principals are all men, as compared with an approximately equal division between men and women in the separate schools. In addition to possessing a greater degree of professional training, the latter group are in general more experienced than the former, though each group includes a number of relatively inexperienced principals. As in the case of the teaching-staffs as a whole, our data are too few in number to permit absolute conclusions; but there seems reason to believe that here also the traditions of the two types of schools play an important part. The junior-senior high schools, finding their policy largely dictated by the senior high school viewpoint, apparently tend to sacrifice experience and professional training in order to obtain as principals men who are college graduates. The separate junior high schools, though in many instances selecting men principals who have college education, give less regard to sex and academic background, placing emphasis rather on experience and professional training.

Apportionment of Principals' Time. — Quite as important as the fitness of a principal for his position is the extent to which he finds opportunity to make use of his training and experience in improving the work of his school. This may be measured approximately in terms of the amount of time of which he can avail himself for administration and supervision within school hours. It is recognized that much work of this sort may be accomplished after the close of the regular school session; but since the principal who has a full teaching-load must devote the major part of his outside time to routine duties, including his preparation for teaching, the extent to which he is relieved of regular teaching affords a rough measure of his opportunity for constructive supervision. We have therefore presented in Table XVIII figures showing the proportion of each principal's time spent (according to the weekly class-schedule of his school) in teaching, study-room direction, and administrative or supervisory duties.

One's immediate impression from a study of this table is that of utter lack of agreement in practice as to the amount of time to be devoted to supervision. In a single school only does the

TABLE XVIII

DUTIES AND SALARIES OF PRINCIPALS OF SMALL MASSACHUSETTS JUNIOR HIGH SCHOOLS

SCHOOLS	SUPERVISOR		DISTRIBUTION OF TIME									SALARY	
	Grades (No.)	Classes (No.)	Teaching (%)			Study-Room (%)			Supervision (%)			Total Amount	Excess over Highest Teaching Salary
			Junior High School	Other Schools	Total	Junior High School	Other Schools	Total	Junior High School	Other Schools	Total		
Arnold.....	6	10	0	0	0	0	0	0	60	40	100	\$3000	\$ 500
Benton.....	6	6	14	43	57	21	22	43	None			2250	950
Corwin.....	3	3 ²	17	67	84	0	0	0	16	0	16	1500	200
Dexter.....	6	6 ³	3	43	46	0	3	3	24	27	51	2600	1000
Eastwood....	8	11	43	43	86	0	0	0	5	9	14	2500	800
Fremont.....	6	6	42	16	58	1	1	2	20	20	40	2000	400
Gordon.....	3	3 ²	67	18	85	10	0	10	5	0	5	1400	—
Harlow.....	3	6 ²	22	0	22	42	0	42	36	0	36	3000	800
Jackson.....	9	9	37	0	37	6	0	6	19	38	57	2850 ¹	1150
Knowlton...	9	9	27	0	27	6	0	6	23	44	67	2100	650
Lundy.....	9	9	57	11	68	13	0	13	6	13	19	2000	600
Mason.....	9	11	42	0	42	34	0	34	8	16	24	3500 ¹	2000
Nestor.....	9	7	32	0	32	2	0	2	28	38	66	1800	200
Oakwood....	4	4	96	0	96	4	0	4	None			1325	181
Parker.....	3	3 ²	96	0	96	4	0	4	None			1400	300
Quentin.....	8	8	21	0	21	0	0	0	26	53	79	1700	500
Raleigh....	6	6 ³	0	100	100	0	0	0	None			2200	575
Selden.....	8	5	80	0	80	14	0	14	2	4	6	1800	400
Tarbell.....	4	2 ²	90	0	90	10	0	10	None			1700	700
Range....	3-9	2-11	0-100			0-43			0-100			1325	0
									-60			-3500	-2000
<i>Means</i>													
All Schools	6.3	6.5			59			10	14		31	\$2138	\$ 627
Combined Schools..	5.5	6.4			65			7	16		28	2181	553
Separate Schools..	6.8	6.6			56			12	13		32	2107	680

principal spend all his time in supervisory duties; in five schools he has no regular time within school hours for supervision. Even in the case of school systems which demand of their junior high school principals supervision of approximately the same total

¹ As superintendent and principal.² In charge of junior high school only.³ In charge of discipline in grades.

number of classes, the disagreement is marked. For the six schools whose principals have direct oversight of six classes each, the total time available for supervision ranges from none in the case of two schools to 79% in the case of one (a junior-senior high school), with a maximum of 36% of one principal's time devoted to supervision of the junior high school. The averages for the nineteen schools as a group show approximately one-third of each principal's time to be available for supervision, of which less than half is devoted directly to the junior high school grades. But these averages, as well as the averages representing practices in combined schools and separate schools as distinct groups, are based upon such widely varying figures as to be of little significance in the case of any single school or type of school.

Possible Explanations of Varying Practices. — The explanation both of the small amount of time devoted to supervision in most of the schools and of the general disagreement as to the distribution of principals' time is at least two-fold. In the first place, the communities supporting these schools have undoubtedly in many cases no just conception of the vital importance of the principal's supervisory duties. They recognize the need of an administrative head who shall be responsible for various types of routine, and they sanction the appointment of such a head; but the traditional view of the principal chiefly as a superior teacher,¹ and the pressure for economy in school expenditures, result in such limitation of the teaching staff that the principal is obliged to devote the major part of his time to classroom teaching. In the second place, the principal himself frequently fails so to organize his teaching staff and his class-schedule as to free himself for the duties for which he should be primarily responsible. We have already cited examples of failure to make desirable combinations of grade-groups and of attempts to offer electives on a basis of free choice rather than of alternative election, which have resulted in the need for more teachers than efficient management would have made necessary. Other examples of an organization so poorly planned as to result in a curtailing of the principal's opportunity to render his most effective service are to be found

¹ See page 126.

in the data presented in Table XVIII. In three of the nineteen schools, for instance, the principals give more than one-third of their time to the direction of study-pupils — a task which, to be performed with greatest effectiveness, should be entrusted to the teachers who have immediate charge of the classroom work of these pupils.¹ Through such lack of vision with respect to their work, certain principals who might find ample time for supervisory duties are obliged to devote themselves largely to less important tasks, and others whose time for supervision is already seriously limited succeed in restricting it still further.

Grades Supervised. — Possibilities of offering effective supervision suffer an additional check in many schools — especially in the separate junior high schools — from the wide range of grades for which the principal must be responsible. The difficult problems involved in the junior high school reorganization would seem to demand his chief attention to the work of these grades; yet in five schools only are his supervisory duties confined to the junior high school, and in more than half the schools a fair apportionment of his time demands that he give the major part of his attention to the work of elementary grades or of the senior high school. The diffusion of energy thus required, together with the limited time at his command, mean that in many cases the principal's work can hardly rise above the level of mere routine.

Salaries. — The salaries paid by the various communities give some indication of the range in quality of service to be expected, and afford a partial explanation of the differing degrees of training and experience which the individual schools command. The fact that in a number of instances the salaries of principals are only slightly higher than those of their teachers gives support to the contention that the small community tends to regard its principal chiefly as a superior teacher. That the majority of the communities here represented can secure as principals at best little more than superior teachers would be suggested by the fact that only five of the principals receive more than the highest-

¹ Cf. Monroe and Mohlman: *Training in the Technique of Study*, Chap. V. Univ. of Illinois Bull., 1924, No. 20, Bur. of Educ. Research.

paid teacher in the nineteen schools, and that four of them receive less than the median highest salary for full-time teachers.¹

More Direct Measures of Efficiency. — The measures thus far applied to the effectiveness of supervision in the Massachusetts schools are in the main indirect. As a more nearly direct indication of principals' professional alertness there are presented in Table XIX data with respect to the systematic use in each school of standardized intelligence and achievement tests, and the provision of systematic guidance for all pupils.² Practice in both these important matters is largely dependent on the principal's initiative. Hence it furnishes at least an approximate measure of his attention on the one hand to sound methods of studying the work of his school, and on the other to the definite attainment of a recognized junior high school objective. Though a more exact index with respect to both these points might be afforded by a detailed statement of practice in each school, the mere fact of systematic use of tests and provision for guidance offers a measure sufficiently accurate for our present purpose.

The information presented in Table XIX shows a variation in practice similar to that revealed in the apportionment of principals' time. Three schools — Dexter, Knowlton, and Tarbell — make systematic use of both intelligence and achievement tests and provide systematic guidance for all pupils. Three other schools — Corwin, Gordon, and Nestor — do none of these things. In the thirteen remaining schools the principals have adopted such varying practices as to make a general statement practically impossible.

As reflected in this table, administrative and supervisory practice in the small schools would appear to have been influenced in strikingly small degree by the best of present educational theory

¹ See Table XVI.

² All the schools give special attention to guidance of pupils who are failing in their regular work; nearly all provide assistance to pupils in selecting their senior high school courses. The checks in Table XIX indicate those schools which provide systematic guidance for individual pupils (by whatever means) in other than these more or less routine matters.

TABLE XIX

USE OF STANDARDIZED TESTS AND PROVISION OF SYSTEMATIC GUIDANCE IN SMALL
MASSACHUSETTS JUNIOR HIGH SCHOOLS

SCHOOLS	SYSTEMATIC USE OF STANDARDIZED TESTS				PROVISION OF SYSTEMATIC GUIDANCE FOR ALL PUPILS
	Of Intelligence		Of Achievement		
	<i>In Grading</i>	<i>For Diagnosis</i>	<i>In Reports and Grading</i>	<i>For Diagnosis</i>	
Arnold.....	X	X	X	X	—
Benton.....	—	—	—	—	X
Corwin.....	—	—	—	—	—
Dexter.....	—	X	—	X	X
Eastwood.....	—	X	—	—	X
Fremont.....	—	—	—	X	—
Gordon.....	—	—	—	—	—
Harlow.....	X	X	—	X	—
Jackson.....	—	—	—	X	—
Knowlton.....	—	X	X	X	X
Lundy.....	—	—	—	X	X
Mason.....	—	—	—	X	—
Nestor.....	—	—	—	—	—
Oakwood.....	—	X	—	X	—
Parker.....	—	X	—	X	—
Quentin.....	—	—	—	X	—
Raleigh.....	—	X	—	—	—
Selden.....	—	X	—	—	—
Tarbell.....	—	X	—	X	X
Totals.....	2	10	2	12	6
	10		12		

and practice. Nearly half the principals make no use of intelligence tests; more than one-third of them do not employ standardized achievement tests; and four use no standardized tests of any sort. Two-thirds of the group have arranged for no systematic guidance of individual pupils, though the provision of such guidance may justly be considered one of the primary objectives of the junior high school reorganization. Not one principal of the nineteen makes thoroughly comprehensive use of both tests and guidance. In the schools as a group, the advantage offered by

recent educational progress in both these directions would seem to have been recognized (if at all) chiefly by chance, and to have been employed quite as much at random as with definite professional purpose.

Summary. — Our consideration of the qualifications of the small-school principals for their work, of the opportunities afforded them and used by them for improving instruction in their schools, and of the extent to which their practice reflects present educational theory, thus results in no very promising view of the situation as a whole. There are a small number of schools — three or four of the nineteen — whose principals appear to have training and experience fairly commensurate with their responsibilities; the ability of these principals is reflected in the administrative and supervisory organizations which they have established. The majority of the principals, however, have training no better than that which may reasonably be demanded of academic teachers in the junior high school; two out of five have received no direct preparation for junior high school work; and one in five has had no professional training whatever. Though in years of combined experience as principals and teachers nearly half rank high, a number have had such brief experience as to make their leadership of doubtful value. As measured by the organization of their schools, by the time which they give to supervision in the junior high school, and by their employment of recognized devices for effective supervision, only a few would seem to have inaugurated a comprehensive and constructive supervisory policy.

General Conclusions. — In view of the need for especially purposeful and intelligent supervision to overcome the handicap of the generally inadequate qualifications of teachers, these facts give little hope that the small schools will be able to realize on any large scale the objectives of the junior high school reorganization. Though supervision by the principals may sometimes be valuably supplemented by that of superintendents and special-subject supervisors, the principals must under present conditions assume immediate responsibility for the work of their schools. Lack of supervisory ability on their part, and especially lack of a super-

visory program which definitely recognizes sound junior high school objectives, can result in little but imitation of the form of junior high school organization. Until more effective supervision can be provided than we now find in the majority of the Massachusetts schools, there can be no general realization of the fundamental objectives.

CHAPTER IX

DIFFICULTIES DUE TO HOUSING AND EQUIPMENT

THE final major limitation upon the work of the small school arises from its very general lack of adequate physical equipment. Although problems of housing and equipment, like those relating to the qualifications of teachers and principals, are in many respects local and transitory in nature, an examination of present conditions offers valuable indication of immediate difficulties and makes possible certain conclusions as to desirable practice.

Types of Equipment Needed. — The nature of the equipment which is needed must of course be determined by the types of work to be carried on in the school. It will be shown in a later chapter¹ that if a junior high school curriculum organized on the basis of current practice is to offer the type of education implied in the objectives of the reorganization, it must embrace a number of subjects not adequately provided for by the ordinary classroom accommodations of the old-type school. Those subjects which demand equipment beyond that of the traditional elementary or high school include general science (for which simple laboratory equipment is desirable), shopwork (including provision for elementary mechanical drawing), home economics, agriculture, and physical training.² Hence in addition to academic classrooms sufficient in number and size to accommodate classes of standard size, the junior high school should have adequate general or special shops, special equipment for sewing and cooking, a general laboratory, a school garden, and an indoor gymnasium. Provision for free play and athletics demands also an adequate playground with equipment for athletics. For the proper conduct of extra-curricular activities an assembly hall large enough to seat the entire school will be necessary; and

¹ Chapter XIII.

² Special equipment for commercial education is not here considered, since both practical and theoretical considerations oppose the introduction in the junior high school of highly specialized work in this field.

provision for individual reading and study by pupils will require a school library.

Housing and Equipment in Massachusetts Schools. — A summary of the equipment found in the nineteen Massachusetts schools, and of the general arrangements in effect for housing these schools, is presented in Table XX. The attempt has been made to indicate in this table both the presence or absence of equipment of the types suggested, and the relative adequacy of the equipment provided. Though the scope of the present study did not allow application to each type of equipment of rigid measures of value, each was roughly judged as either reasonably adequate (*A*) for the uses and the number of pupils for which it was employed, or merely a makeshift (*M*).

The inadequacy of the equipment in many of the schools is in part explained by the fact that only one school — that at Harlow — is in operation in a building erected with the problems of a junior high school in mind; though the school at Arnold is shortly to have a separate building, specially planned and equipped. The Parker school — the only one besides Harlow to be working at present (1924-1925) in a separate building — is housed in a remodeled two-story structure of the district-school type, the first floor of which has been cleared to provide space for indoor athletics. The other schools are in buildings planned for elementary- or high-school use, or both, under the old eight-four organization.

Provision for General Classwork. — The lack of adaptation of these buildings to junior high school purposes is strikingly shown in their meager provision even for general classwork. Well over one-third of the schools are obliged to carry on daily work in classrooms too few or too small for the number of pupils to be accommodated, or in rooms never intended originally for the uses to which they are being put. Only two schools, moreover, have assembly halls reasonably adequate in arrangement and size for the use of the junior high school grades; seven have practically no opportunity for general assemblies, and the other ten are forced to rely for assembly activities on senior high school study-rooms, large classrooms, or the hall in a nearby community

house. Provision for a school library is even more rare. Though a few schools have made arrangements by which pupils may visit the town library in school hours, only two have general libraries in the school building. Of these two, one consists of a well-planned

TABLE XX

PHYSICAL EQUIPMENT OF SMALL MASSACHUSETTS JUNIOR HIGH SCHOOLS

SCHOOLS	BUILDING					CLASSROOMS	ASSEMBLY HALL	LIBRARY	SHOPWORK			HOME ECON.		LABORATORY	SCHOOL GARDEN	PHYSICAL TRAINING		
	Separate	With S. H. S.	With El. Sch.	With Both S.H.S. and El. Sch.	Erected for J. H. S.				Woodworking	Printing	General	Sewing	Cooking			Gymnasium	Playground	Athletic Equip.
Arnold		X				M	M	—	M	—	—	A	A	A	—	—	A	A
Benton		X				A	M	—	M	—	—	—	—	A	—	—	M	M
Corwin						M	M	—	—	—	—	—	—	A	—	—	M	M
Dexter				X		A	M	—	A	A	—	M	A	A	—	—	M	M
Eastwood				X		M	—	—	M	—	—	—	—	A	—	—	M	M
Fremont		X				A	M	M	—	—	—	M	M	M	—	—	A	A
Gordon		X				M	A	—	M	—	—	A	A	A	—	—	M	A
Harlow	X				X	A	A	M	A	—	—	A	A	A	—	A	A	A
Jackson			X			A	A	—	A	—	—	M	A	A	—	—	M	M
Knowlton			X			A	M	—	A	—	—	A	A	A	—	—	A	A
Lundy			X			A	M	—	—	—	A	A	A	—	—	—	A	A
Mason			X			A	—	—	—	—	A	A	A	—	—	—	A	A
Nestor			X			A	—	—	A	A	—	M	M	—	—	—	M	—
Oakwood			X			A	—	—	M	—	—	M	M	—	—	—	M	—
Parker	X					M	M	—	—	—	—	—	—	M	—	M	—	—
Quentin			X			M	—	—	—	—	—	M	—	—	—	—	M	—
Raleigh				X		M	M	—	—	—	—	—	—	M	—	—	M	—
Selden			X			A	M	—	—	—	—	—	—	—	—	—	—	M
Tarbell			X			M	M	—	—	—	—	—	—	—	M	—	A	A
Totals	2	4	9	4	1													
Reasonably Adequate (A)						11	2	—	5	2	2	6	7	5	—	1	7	6
Makeshift (M) ¹						8	10	2	5	—	—	7	3	7	1	2	12	8
Lacking						—	7	17	—	7	—	6	9	7	18	16	—	5

library room almost without books, and the other of a few shelves of volumes borrowed from the local public library, in a corner of the principal's office.

Provision for Classes in Special Subjects. — Similar conditions exist with respect to work in special subjects. About two-thirds

¹ In connection with classrooms, indicates serious congestion or use of markedly unsuitable rooms.

of the schools, only, are equipped in some measure for work in practical arts for boys; two provide reasonably adequate general shops. In the equipment for home economics there is wide diversity. One-third of the buildings afford opportunity for neither cooking nor sewing; of the remainder, three offer one type of equipment and not the other, and provision in those offering both varies from one school with highly complete equipment to several having the barest minimum.¹ Special equipment for work in art and mechanical drawing is practically non-existent. Three of the twelve schools providing laboratory equipment for the work in science — Harlow, Knowlton, and Parker — have developed their own laboratories; the school in Jackson possesses the materials left behind by the high school which it has displaced, and the other eight schools are able to use the senior high school equipment in their buildings. Special equipment for work in agriculture is found only in Tarbell, which operates a hot-bed during the spring.

Physical Training Equipment. — All the schools are provided with playgrounds of a sort, though in less than one-third of the cases can the grounds be considered reasonably adequate either in size or in suitability for athletics. Athletic equipment consists in most instances of the playground apparatus usually provided for elementary-school pupils, with possibly two or three bats, balls of different types, and a volley-ball net, and occasionally a set of outdoor basketball standards. The six schools which provide fairly satisfactory equipment have fields laid out both for free play and for various types of athletics, and own a reasonably adequate supply of the materials for several sports. Harlow alone, however, has a well-equipped gymnasium. Eastwood uses a hall available to pupils after school hours, and Parker has a room equipped for basketball; equipment in the other schools allows only setting-up exercises in the classrooms.

Junior-Senior High Schools and Separate Schools Compared. — The facts presented in Table XX make possible the division of the schools into two groups: eight schools housed with the

¹ Courses in practical arts and home economics are carried on in Oakwood with meager equipment placed in the hallways of a crowded elementary-school building.

senior high school or with both senior high school and elementary school, — the junior-senior high schools, — and eleven schools in separate buildings or with elementary grades. The types of equipment provided by each group are summarized in Table XXa. It is possibly significant that such advantage as there is

TABLE XXa

PHYSICAL EQUIPMENT OF JUNIOR-SENIOR HIGH SCHOOLS AND OF SEPARATE
JUNIOR HIGH SCHOOLS COMPARED

		CLASSROOMS	ASSEMBLY HALL	LIBRARY	SHOPWORK			HOME ECON.		LABORATORY		SCHOOL GARDEN	PHYSICAL TRAINING		
					Woodworking	Printing	General	Sewing	Cooking				Gymnasium	Playground	Athletic Equip.
<i>Number</i>															
Junior-Senior High Schools	Adequate	3	0	0	1	1	—	2	3	3	0	0	2	2	
	Makeshift	5	5	1	4	—	—	3	1	5	0	1	6	5	
	Lacking	0	3	7	3			3	4	0	8	7	0	1	
Separate Junior High Schools	Adequate	8	2	0	4	1	2	4	4	2	0	1	5	4	
	Makeshift	3	5	1	1	—	—	4	2	4	1	1	6	3	
	Lacking	0	4	10	4			3	4	4	10	9	0	4	
<i>Per cent</i>															
Junior-Senior High Schools	Adequate	38	0	0	13	13	—	25	38	38	0	0	25	25	
	Makeshift	62	62	13	50	—	—	38	12	62	0	13	75	63	
	Lacking	0	38	87	37			38	50	0	100	87	0	12	
Separate Junior High Schools	Adequate	73	18	0	36	9	18	36	36	18	0	9	45	36	
	Makeshift	27	45	9	9	—	—	36	18	36	9	9	55	28	
	Lacking	0	37	91	37			28	46	46	91	82	0	36	

in the matter of reasonably adequate classrooms and provision of special equipment seems to rest in the main with the latter group. A greater proportion of the junior-senior high schools afford library, laboratory, and athletic equipment; but in the proportions of schools providing other types of equipment, and especially in the relative adequacy of their equipment, the separate schools are in most cases in the lead.

The explanation for this is perhaps to be found not in the housing of the junior high school with the elementary or senior

high school, but in the organization of the school system as a whole, as shown in Table I. Of the schools housed separately or with the elementary grades, only one (that at Quentin) is part of a system extending beyond the junior high school. Two of these schools (those at Jackson and Parker) were established immediately after the abandonment of a senior high school in the system; nearly all the others seem to have grown in part out of a desire to offer a beginning in secondary education, since a complete program was impracticable. These communities are of course still paying senior high school tuition; and factors of local finance, local needs and ambitions, size of towns, and specific local problems must be considered in a thorough analysis of the situation. But it is at least possible that one general factor is here at work. In small communities maintaining a senior high school in addition to the junior high school, the interest and pride of the citizens are likely to be centered on the work of the upper rather than of the intermediate or elementary grades. Especially does this seem true of towns which can support a senior high school only with difficulty. The result is a draining of resources which affects seriously the grades below the high school. In towns, on the other hand, which have never been able to support a senior high school or have abandoned this part of the system as a burden too great for them, the interest of the community is centered on the junior high school grades as the culmination of their school system.¹¹ Hence the limiting of the system to elementary and junior high school grades is likely to result, in the small community, not merely in better provision for the schools as a whole, but in greater interest in the junior high school and more definite attention to the problems of reorganization.

On the basis of present data this conclusion can of course stand as no more than an hypothesis. The tendencies which it suggests, however, are of such importance as to demand definite consideration in plans for the establishment of a junior high school in a small community. Especially in Massachusetts, where high school tuition is available for the majority of small towns in nearby large communities, it lends added force to the many arguments for the abandonment of the senior high school by

communities so small as to be unable to support a thoroughly adequate program of education, and the centering of attention on the elementary and intermediate grades.

Effect of Physical Limitations on the Work of the Small School. — The effect of these physical limitations upon the ability of the small school to offer junior high school training has been implied in the means adopted for determining the necessary equipment. It is probable that inadequacy of classrooms and lack of library space will not prove insuperable obstacles to a skillful teacher, especially in schools in which classes are small. Nor need lack of equipment for athletics and for school assemblies, and the housing of the junior high school with grades above or below, make impossible the development of a school spirit and the training of pupils in co-operative work and play. The seriousness of the physical handicaps under which the small school may be placed arises not from these sources, but from the fact that no satisfactory substitutes can be found for the other generally accepted practices which they prevent.

Restrictions on Curricular Work. — The restrictions placed on the curricular work of the school are perhaps most apparent. In courses largely dependent on the use of books, employment of the problem-project method is necessarily restricted because of the lack of library facilities. Though work in science may possibly be based almost entirely on textbook material, such teaching is likely to be far less effective than that which provides opportunity for simple demonstrations, experiments, and manipulation. Provision for courses in shopwork, home economics, and agriculture need not be highly elaborate, but the necessary insight into the fields represented by these subjects, and the guidance based on their study, cannot be afforded without such equipment as to make possible actual practice in the activities studied, rather than mere learning about them. In all these respects the physical equipment of the school plays an important part in determining the effectiveness of teaching, and for the special subjects it furnishes frequently the sole basis for a decision as to what is to be taught.

It is true that certain towns find it possible to provide special-

ized training, particularly in the industrial field, through agencies other than the school. Arnold, for example, offers a brief course in automobile repair in a local garage. Home-project courses, particularly in agriculture, are occasionally found; though it is to be noted that such courses are almost always (and properly) supplementary to work in the school, rather than in substitution for it. But the school which makes itself dependent on such outside agencies necessarily sacrifices a large measure of control of the work which it surrenders, and thereby runs a grave risk of subjecting its students to a type of training which in both subject matter and methods may be seriously at variance with desirable educational aims. Unless a school provides its own equipment it can ordinarily hope to fulfill at best only a part of the recognized functions of the junior high school.

Restrictions on Extra-Classroom Activities. — Lack of proper equipment may prevent also the organization of desirable extra-classroom activities. No health program can be complete which cannot avail itself of both outdoor and indoor equipment; nor is the introduction of intramural athletics thoroughly feasible without the provision of such equipment. The fostering of general pupil-activities on a large scale is handicapped by lack of a suitable assembly-room. The range of possible club-activities is restricted by the lack of those same materials which are necessary to make the special curricular work of the school most successful. Though a school's work in all these directions is less completely dependent upon special equipment than is the teaching of the special subjects mentioned above, it is difficult to see how it can be made thoroughly effective with no special provision or with merely makeshift equipment.

Summary of Limitations on Massachusetts Schools. — Not one of the Massachusetts schools but finds its program restricted in certain of these directions by lack of necessary physical equipment. In the matter of provision for the special subjects and for the guidance based on them, in the conduct of extra-curricular activities, and in the offering of an adequate program of physical training the schools as a group are particularly handicapped. In the majority of cases, moreover, the limitations thus placed upon

their work are such as to be practically insuperable under existing conditions.

Possible Sources of Improvement. — These conditions can hardly fail to be discouraging in the extreme to those who are directly concerned with the provision of junior high school education in the small community. Yet it is probable that they will continue to confront most of the present schools, and most other small schools which may be established in the future, for a long time to come. The wide lack even of suitable classroom accommodation points to new and better-planned buildings as the only satisfactory remedy. In few small communities, however, can new buildings be obtained as long as shift can be made with the old. Two factors only are likely to force re-building: the pressure of a growing school population, and the steady movement toward the abandonment of outlying one- and two-room schools. And without a strong public sentiment in favor of the best schools that can be provided it is doubtful that even these factors will result in the provision of markedly better equipment. Rate of growth which in a city of five thousand school population favors the erection of a new unit to accommodate five hundred pupils, demands in the community providing for only three hundred children the addition merely of a single classroom; and in most towns and villages similar to those studied an increase of this size would extend over a period of several years. Even the centralization of outlying schools seems frequently to be attained through the erection of one or two portable buildings. Only as the small schools can obtain aid from sources not now apparently open to them, or as communities are willing to limit their school systems to the number of grades which they can support with reasonable effectiveness, may essential improvement in junior high school conditions be hoped for.

PART III

CURRICULAR AND EXTRA-CURRICULAR
OFFERINGS IN MASSACHUSETTS SCHOOLS

CHAPTER X

PROGRAMS OF STUDIES IN MASSACHUSETTS SCHOOLS

IN presenting a summary of programs of studies in the small Massachusetts junior high schools it is our purpose not to consider in detail the offerings of single schools, but to trace in the schools as a group the operation of those factors which we have noted as the source of special difficulties. Complete record of the effect of such factors would demand analysis of the actual courses of study of the various schools. Since data for this analysis are not available, we are obliged to confine ourselves to a relatively superficial examination of offerings. But even a review of offerings in terms of subjects alone proves to afford significant indication of current tendencies in the small junior high school and of the directions in which change of practice is most urgently needed.

The programs of studies of all the schools except Tarbell, in which the peculiar organization of courses makes difficult any simple classification, are tabulated in Table XXI. The schools have here been grouped according to form of grade-organization, with the programs of the seven six-three-three-plan schools, the eight three-year schools without senior high schools, and the three two-year schools, presented separately. For each group of schools the subject-offerings are classified by grades in terms both of the eleven major divisions of subject matter and of the special subject-titles used in each school.

Causes of Variation in Offerings.—The wide variation in practice between individual schools which immediately appears in this grouping seems to offer in certain instances, as we shall show, an indication of the lack of constructive administrative policy which has been noted in earlier sections of this study. But lest too great stress be placed on this lack in the case of individual schools, it may be well to point out the fact that other elements enter to a marked degree. In particular it should be recalled that

TABLE XXI

A SUMMARY OF PROGRAMS OF STUDIES IN SMALL MASSACHUSETTS JUNIOR HIGH SCHOOLS

A. Six-Three-Three Plan (Seven Schools)

SUBJECTS	SCHOOLS OFFERING SUBJ. AS CONSTANTS			SCHOOLS OFFERING SUBJ. AS VARIABLES			SCHOOLS OFFERING SUBJECTS IN		
	Gr. 7	Gr. 8	Gr. 9	Gr. 7	Gr. 8	Gr. 9	1 Gr.	2 Gr.	3 Gr.
<i>English</i>	7	7	7	—	—	—	—	—	7
Composition.....	2	1	—	—	—	—	2	1	—
Literature.....	2	1	—	—	—	—	2	1	—
Grammar.....	2	1	—	—	—	—	2	1	—
Spelling.....	4	3	—	—	—	—	1	3	—
Penmanship.....	4	3	—	1	1	1	1	3	1
<i>Mathematics</i>	7	7	—	—	—	7	—	—	7
Arithmetic.....	6	6	—	—	—	—	—	6	—
Algebra.....	—	—	—	—	—	6	6	—	—
General Mathematics....	1	1	—	—	—	1	—	—	1
<i>Social Studies</i>	7	7	2	—	—	5	—	—	7
United States History....	6	7	—	—	—	—	1	6	—
Ancient History.....	—	—	—	—	—	5	5	—	—
Geography.....	7	5	—	—	—	—	2	5	—
Civics.....	1	1	2	—	—	2	3	—	1
Current Events.....	1	1	—	—	—	—	—	1	—
Vocations.....	1	1	—	—	—	—	—	1	—
<i>Science</i>	7	5	1	—	2	6	—	—	7
Hygiene.....	3	3	—	—	—	—	—	3	—
General Science.....	4	3	1	—	2	4	2	5	—
Biology.....	—	—	—	—	—	2	2	—	—
<i>Foreign Language</i>	—	—	—	—	3	7	4	3	—
French.....	—	—	—	—	2	4	2	2	—
Latin.....	—	—	—	—	1	6	5	1	—
<i>Music</i>	6	6	3	—	—	3	—	—	6
<i>Art</i>	4	4	—	—	—	4	—	—	4
<i>Physical Training</i>	6	6	5	—	—	—	—	1	5

A. Six-Three-Three Plan (Continued)

SUBJECTS	SCHOOLS OFFERING SUBJ. AS CONSTANTS			SCHOOLS OFFERING SUBJ. AS VARIABLES			SCHOOLS OFFERING SUBJECTS IN		
	Gr. 7	Gr. 8	Gr. 9	Gr. 7	Gr. 8	Gr. 9	1 Gr.	2 Gr.	3 Gr.
<i>Practical Arts: Boys</i>	4	4	—	—	—	4	—	—	4
Woodworking.....	4	4	—	—	—	4	—	—	4
Printing.....	—	1	—	—	—	1	—	1	—
Auto Work.....	—	—	—	—	—	1	1	—	—
Agriculture.....	—	—	—	—	—	1	1	—	—
Mechanical Drawing.....	—	—	—	—	—	2	2	—	—
<i>Practical Arts: Girls</i>	4	5	—	—	—	4	—	2	3
Sewing.....	4	4	—	—	—	3	—	4	1
Cooking.....	1	2	—	—	—	4	2	1	1
Textiles.....	—	—	—	—	—	1	1	—	—
<i>Commercial Subjects</i>	1	1	—	—	2	5	2	2	1
Business Practice.....	1	1	—	—	2	1	1	2	—
Bookkeeping.....	—	—	—	—	—	1	1	—	—
Typewriting.....	—	—	—	—	—	2	2	—	—
Commercial Arithmetic...	—	—	—	—	—	3	3	—	—
Commercial Geography...	—	—	—	—	—	1	1	—	—
Commercial Penmanship..	—	—	—	—	—	1	1	—	—

B. Six-Three Plan (Eight Schools)

<i>English</i>	8	8	8	—	—	—	—	—	8
Literature.....	1	1	1	—	—	—	—	—	1
Grammar.....	1	—	—	—	—	—	1	—	—
Spelling.....	5	3	2	—	—	—	3	2	1
Penmanship.....	7	7	3	—	—	1	—	3	4
<i>Mathematics</i>	8	8	4	—	—	4	—	—	8
Arithmetic.....	8	7	—	—	—	—	1	7	—
Algebra.....	—	1	4	—	—	4	7	1	—
General Mathematics....	—	1	—	—	—	—	1	—	—
<i>Social Studies</i>	8	8	7	—	—	1	—	—	8
United States History....	8	7	1	—	—	—	1	6	1
Ancient History.....	—	—	1	—	—	—	1	—	—
English History.....	—	—	1	—	—	1	2	—	—
Geography.....	7	7	1	—	—	—	2	5	1
Civics.....	3	4	5	—	—	—	4	1	2
Current Events.....	2	2	2	—	—	—	—	—	2
Vocations.....	—	—	1	—	—	—	1	—	—

B. Six-Three Plan (Continued)

SUBJECTS	SCHOOLS OFFERING SUBJ. AS CONSTANTS			SCHOOLS OFFERING SUBJ. AS VARIABLES			SCHOOLS OFFERING SUBJECTS IN		
	Gr. 7	Gr. 8	Gr. 9	Gr. 7	Gr. 8	Gr. 9	1 Gr.	2 Gr.	3 Gr.
<i>Science</i>	6	4	5	—	1	2	2	2	4
Hygiene.....	2	1	—	—	1	—	—	2	—
Physiology.....	2	2	—	—	—	1	1	2	—
General Science.....	—	—	3	—	—	1	4	—	—
<i>Foreign Language</i>	2	2	3	1	2	5	4	1	3
French.....	2	2	3	1	2	4	3	1	3
Latin.....	—	—	—	—	1	4	3	1	—
<i>Music</i>	7	6	6	—	—	—	1	—	6
<i>Art</i>	7	7	4	1	1	4	—	—	8
<i>Physical Training</i>	5	5	5	—	—	—	—	—	5
<i>Practical Arts: Boys</i>	5	6	1	—	1	3	—	4	3
Woodworking.....	4	4	1	—	1	2	—	3	2
Printing.....	—	1	—	—	—	1	—	1	—
General Shop.....	1	2	1	—	—	1	—	1	1
Mechanical Drawing.....	—	—	—	2	2	3	2	1	1
Basketry.....	—	—	—	1	—	—	1	—	—
<i>Practical Arts: Girls</i>	6	6	2	1	1	3	—	2	5
Sewing.....	6	3	1	1	1	1	3	2	2
Cooking.....	3	5	1	—	—	3	1	4	1
Basketry.....	—	—	—	1	—	—	1	—	—
<i>Commercial Subjects</i>	—	—	1	—	—	2	3	—	—
Bookkeeping.....	—	—	—	—	—	1	1	—	—
Commercial Arithmetic...	—	—	—	—	—	3	3	—	—
Commercial Geography...	—	—	1	—	—	—	1	—	—

C. Six-Two and Six-Two-Four Plans (Three Schools)

SUBJECTS	SCHOOLS OFFERING SUBJ. AS CONSTANTS		SCHOOLS OFFERING SUBJ. AS VARIABLES		SCHOOLS OFFERING SUBJECTS IN	
	Gr. 7	Gr. 8	Gr. 7	Gr. 8	1 Gr.	2 Gr.
English	3	3	—	—	—	3
Spelling	2	2	—	—	—	2
Penmanship	2	2	—	—	—	2
Mathematics	3	3	—	—	—	3
Arithmetic	3	3	—	—	—	3
Algebra	—	—	—	1	1	—
Social Studies	3	3	—	—	—	3
United States History	3	2	—	—	1	2
Geography	3	2	—	—	1	2
Civics	2	1	—	—	1	1
Science	2	2	1	1	—	3
Hygiene	1	1	—	—	—	1
Physiology	1	1	—	—	—	1
General Science	—	—	1	1	—	1
Foreign Language	—	—	1	2	2	1
French	—	—	1	1	—	1
Latin	—	—	—	2	2	—
Music	2	2	1	1	—	3
Art	2	2	1	1	—	3
Physical Training	1	1	—	—	—	1
Practical Arts: Girls	1	—	—	—	1	—
Sewing	1	—	—	—	1	—

With the exception of foreign language, which is elective in each school, all the variables represented in Part C of Table XXI are found in the school organized on the six-two-four plan (in this case a modified six-six plan).

nearly all these schools are still in process of reorganization; their offerings as noted in this table represent a transition stage — and in some cases a very early stage — between the traditional type of organization and that of a soundly conceived junior high school. The attitude of local communities has also doubtless

exerted much influence in determining specific courses of study; and the availability of teachers, as well as the qualifications of teachers employed in the schools, has frequently been of importance in the same direction. In so far as adverse criticism touches upon administrative policy in individual schools, therefore, the possible effect of such local factors should be definitely borne in mind.

In the schools as a group, two strong influences are evidently at work, the one proceeding from the elementary school and the other from the senior high school.

Influence of Elementary-School Tradition. — The influence of the traditional elementary-school curriculum appears especially in the position given in many of the schools to spelling and penmanship, arithmetic, and history and geography, and in the large numbers of separate subjects included in seventh- and eighth-grade programs. Though established junior high school practice would unite composition, literature, grammar, spelling, and penmanship into a unified course in English (with a possible distinction between composition and literature), there is little sign of such unification in the lower grades of most of these schools.¹ History and geography likewise tend to remain entirely separate, either alternating as completely distinct subjects during each week or occupying successive time-units in the two-year program. Mathematics is with few exceptions the arithmetic of the elementary-school grades, with no apparent recognition of the revisions recommended for the junior high school. In the nomenclature used and in the general classification of subjects, the seventh- and eighth-grade programs reveal as a whole little departure from traditional practice.

Influence of Senior High School Tradition. — Senior high school influence reveals itself in a tendency both to bring down into the lower junior high school grades, without fundamental revision, the upper-school language courses, and to maintain in the third

¹ One school goes so far as to make spelling completely coördinate with the rest of the English course, placing it on a five-periods-per-week basis in the seventh and eighth grades. A number of schools make departmental divisions within the English course, and between history and geography.

year of the junior high school the traditional first-year high school program. Both Latin and French find place in a number of schools in the eighth grade, and French is required in two schools in the seventh. The possible evil here, it is to be noted, is not the early introduction of these subjects, but their teaching on a senior high school basis. Junior high school theory would require that they be organized as try-out or exploratory courses, in such manner as to be of value in themselves, for however short a time pursued;¹ yet so far as could be determined in this investigation none of the courses here represented serves any other purpose than that of preparation for senior high school work. The programs of the ninth grades reveal in very large measure a dominant senior high school point of view. The work in English cannot be analyzed on the basis of data from Table XXI; but mathematics becomes in most cases formal algebra; the social studies are represented by the usual ancient history (in two schools English history); French and Latin take their accustomed places in schools where they have not been earlier introduced; and in certain instances specialized bookkeeping and typewriting make their appearance.

Lack of Recognized Junior High School Procedure. — As an accompaniment of this two-fold influence from the elementary school and the senior high school we find all too few traces of recognized junior high school procedure. Survey and try-out courses in the fields of the academic subjects appear to be rare. Two schools have introduced general mathematics in one or more grades, and twelve schools offer courses in general science; but there are no such courses in the social studies and none in foreign language. The lack of exploratory courses in prevocational subjects is even more striking. Shopwork represents in nearly all cases the more or less formal woodwork, and occasionally printing and mechanical drawing, ordinarily found in schools of the traditional type; practical arts for girls consists in cooking and sewing; introductory agriculture is found in only two schools;² and introductory business practice is given place in only three.

¹ See page 16, items I B and I C.

² Including Tarbell. See Table XXIII.

The schools as a group tend, moreover, to neglect certain subjects which may properly be expected to find a place in the junior high school program. We have noted the lack of courses in agriculture and business practice, and of a broad range of shopwork and of practical arts for girls. Perhaps more surprising is the lack of systematic work in physical training in six of the nineteen schools. Courses in art are missing in three schools, and courses in music also in three. The courses omitted, it is to be observed, are those which require special training or special equipment, or both, for their presentation: academic courses or courses which can be made academic — such as science and foreign language — find place in every school.

Summary of Most Common Practices. — Stated in general terms, the most common practices with respect to subject-matter offerings appear to be these: first, to retain the usual elementary-school subjects and organization of subject matter in the seventh and eighth grades, and the traditional high-school work in the ninth grade; second, to introduce foreign-language teaching in the seventh or eighth grade, without adaptation in the light of junior high school objectives; third, to introduce "general" organization of subject matter only in eighth- or ninth-grade science — that is, in the one textbook subject (as commonly taught) which has no large body of traditional practice behind it; and fourth, to neglect the teaching of subjects which require special equipment or special training on the part of teachers, with a resultant tendency to limit the junior high school program to one largely made up of academic courses. Major responsibility for these practices may be traced in every case to the special difficulties with which the small junior high school has to contend. The influence of traditional subject-matter organization can hardly fail to be great in schools in which teachers have received little special training for junior high school work, and in which principals have all too seldom a clear and constructive policy of reorganization. Introduction of the exploratory courses which should be a distinctive feature of junior high school work tends for the same reasons to be of comparatively rare occurrence. The frequent omission of certain studies is a result not only of

these defects, but of lack of adequate equipment and (in the very small schools especially) of limited teaching staffs. The tendencies which we have pointed out are thus no more than necessary consequences of the limiting factors previously analyzed.

Three-Year Combined Schools and Separate Schools Compared. — Comparison of differing subject-matter offerings in the three groups of junior high schools serves to illustrate, however, certain factors less prominent when all the schools are considered together. The data for the three-year combined schools and the three-year schools organized separately show no marked differences in the total offerings in English, mathematics, the social studies, and music. In science the separate schools provide less complete offerings, only half these schools, as compared with all the combined schools, affording science study in all three grades. The separate schools give to physiology, moreover, — a subject not found in the combined schools, — a place of some importance, tending to neglect natural science in more or less proportionate degree. Foreign language receives marked emphasis in these schools; three schools offer French in all three grades, though in none of the combined schools does either French or Latin appear in more than two grades. Art is relatively neglected by the combined schools; systematic physical training is lacking in a considerable proportion of the separate schools. Practical arts for both boys and girls receive greater attention in the latter; both of the general shops are found in these schools. In range as well as in number, however, the commercial offerings in the separate schools are far more restricted than in the junior-senior high schools.

Influence of Senior High School Standards on Separate Schools. — The small number of schools in each group and the possible influence of widely varying factors in the case of individual schools make it difficult to draw significant general conclusions from these specific facts. The somewhat broader provision for practical arts in the separate schools is doubtless to be traced in large measure to the more nearly adequate equipment for such work in these schools.¹ The inclusion of art teaching in all the separate

¹ See Table XXa.

schools, and possibly their neglect of science teaching, may be due to the greater influence of elementary-school tradition. It is probable, however, that the fact that none of these schools is in a system which includes a senior high school has much to do with a considerable number of the differences in offerings. Lack of close articulation with the senior high school makes the transition from the ninth to the tenth grade of greater moment than in junior-senior high schools. This would seem to be especially true when admission to the tenth grade is determined — as with all the separate three-year schools — by standards set by persons not in immediate touch with the junior high school work. The meeting of such standards is ordinarily judged in terms of academic constants — English, mathematics, social studies — and for “classical” pupils in terms of an additional language variable. Hence the careful attention of the separate schools to these subjects, and their tendency to neglect courses (including commercial subjects) not contributing as directly to senior high school preparation.

On the basis of our present data this conclusion can be advanced only as an hypothesis, and as an hypothesis to which certain of the facts at hand — the greater attention of the separate schools to practical arts, for example — seem to offer a measure of exception. It is supported in considerable degree, however, by the expressed attitude of a number of the separate-school principals, and by the pride of teachers, principals, and superintendents in the “showing” made by junior high school graduates in out-of-town senior high schools.

The Offering of Electives. — Differences between the two groups of schools in the offering of electives, moreover, would seem to be explained in part on the basis of this hypothesis. The elective programs of the separate schools are of necessity less comprehensive than those of the junior-senior high schools, owing to the markedly smaller average enrollment of the former.¹ It is to be noted, however, that the greatest difference between the two groups in the offering of electives occurs in connection with the

¹ The separate schools enroll an average of 22 pupils per grade, as compared with an average enrollment of 31 pupils per grade in the combined schools.

academic subjects, not the special subjects. Ninth-grade mathematics, for example, is required in half the separate schools, though it is elective in all the combined schools; ninth-grade history is required in all but one of the separate schools and elective in all but two of the combined schools; ninth-grade science is on approximately the same basis; and ninth-grade French, instead of being on a completely elective basis as in the combined schools, is a required subject in three of the eight separate schools. French is, in fact, introduced earlier in two of the separate schools than in any combined school, and is on a completely required basis in three separate schools. Special subjects, on the other hand, though elective in a somewhat smaller proportion of the separate schools than of the junior-senior high schools, are offered on approximately the same basis in both groups of schools. There would thus seem to be noteworthy evidence of a tendency on the part of the separate junior high schools not merely to give first attention to the academic subjects demanded for high-school preparation by out-of-town schools, but in many cases to establish these subjects, however formal or specialized in content, as required for all pupils.

Two-Year Junior High Schools. — With respect to the three two-year schools we can do little more than point out the extreme narrowness of their offerings, and their lack of elective courses. None of these schools, it is to be observed, offers training in practical arts for boys or in commercial subjects, and only one offers practical-arts work of any nature for girls, or systematic physical training. The two separate schools provide only Latin on an elective basis; the combined school makes possible a certain amount of election in other subjects. Except in the offering of general science and the early introduction of foreign language, not one of the schools provides a program of studies in any way distinguishable in content from that of the traditional eight-four organization. That such barrenness of offering is a necessary characteristic of the two-year junior high school is of course not to be assumed. Conditions in the schools here presented would seem to have been due chiefly to inadequate housing or to the disproportionately small size of the teaching staff; as

determined on the basis of enrollment alone, it should be possible for them to offer economically much broader and more valuable programs.

Failure to Make Use of Alternations of Courses. — The narrow range of offerings found in many single schools, whatever their general form of organization, seems to be due in considerable measure to a failure to make use of possible alternations of courses from year to year. The special need for such alternations in schools too small to section their grade-groups has already been referred to in connection with our study of elective offerings.¹ Adoption of the plan there suggested was shown to be practically essential to the economical offering of a satisfactory program of electives in schools enrolling fewer than twenty-six pupils per grade — that is, in such schools as Fremont, Gordon, Lundy, Mason, Nestor, Oakwood, Parker, Raleigh, Selden, and Tarbell. Tarbell has realized to the full the advantage of this type of program. Of the nine other schools, none has made apparent use of it. Alternations of subjects are found, however, in Benton and Eastwood — two of the larger junior-senior high schools. The system of alternations in Benton, which provides the more extensive scheme of organization on this basis, includes the following groupings:

TABLE XXII

ALTERNATIONS OF COURSES IN THE "BENTON" JUNIOR HIGH SCHOOL

GRADES	OFFERINGS IN	
	Even Year	Odd Year
8 and 9	Latin A	Community Civics
9 and 10	Ancient History French A Biology	Latin B, or Typewriting A (No alternate) General Science

The extent to which alternation of courses is feasible when circumstances make such subject-matter organization necessary is illustrated in the program of studies offered by Tarbell. So suggestive is this program of possible types and methods of subject-

¹ See page 51.

grouping that it is here reproduced in full (Table XXIII). The program of studies for Tarbell is of course not completely applicable to any other of the small Massachusetts junior high schools;

TABLE XXIII

CURRICULUM OF THE "TARBELL" JUNIOR HIGH SCHOOL¹

SUBJECTS	YEAR 1923-1924			
	Grade VII	Grade VIII	Grade IX	Grade X
English.....	A	A	C	C
Social Studies.....	U. S. History and Civics		Community Civics	
Science.....	Hygiene (3)	Hygiene (3)	General Science A	
Mathematics.....	Arithmetic	B	B	C
Latin.....	—	B	B	C
Commercial.....		Bookkeeping	Bookkeeping	Com'l. Geog.
	Composition and Grammar (3)			
	YEAR 1924-1925			
English.....	B	B	D	D
Social Studies.....	Geography	Geography	History to 1700	
Science.....	General Science B		Biology	Biology
Mathematics.....	A	A	C	C
Latin.....	A	A	C	C
Commercial.....	Commercial Arithmetic		Commercial Geography	

NOTES

English A and English C stress the work in Literature.

English B and English D stress the work in Composition.

United States History meets the requirement of law, while Community Civics is more advanced.

Mathematics A covers about two-thirds of elementary algebra.

Mathematics B finishes algebra and covers one-third of geometry.

Mathematics C finishes geometry.

Latin A covers about two-thirds of a beginner's book.

Latin B finishes the beginner's book and covers one-third of Caesar's Gallic War

Latin C finishes Caesar.

General Science A is the usual elementary, comprehensive course in the subject.

General Science B is agricultural general science.

All subjects five times per week, except as indicated by parentheses.

For 1925-1926 the schedule for 1923-1924 is repeated.

For 1926-1927 the schedule for 1924-1925 is repeated.

¹ From the Reports of the School Committee for this system, for the year ending December 31, 1923.

nor is it probable that other schools will wish to adopt any one of its groupings without a considerable degree of modification. But the scheme of organization so ingeniously worked out in this school is one which merits careful study. The sacrifice in economy and in breadth of offerings resulting from the failure of other small schools to make even limited use of such a plan represents in many cases a serious indictment of their administrative policy.

Time-Allotments. — We have thus far considered subject-matter offerings in the various schools without reference to the time-allotments involved. So small is the number of schools concerned, and so greatly do most of their allotments appear to be affected by merely local conditions, that their reproduction in detail is not here attempted. A study of the class-schedules for the schools as a group has brought to light, however, two matters of such general significance as to merit brief attention.

Limited Time-Allotments in Practical Arts. — The first of these concerns time-allotments to practical arts in schools in which this work is in charge of traveling "supervisors" or teachers not regularly attached to the junior high school staff. Economy in the use of the traveling teacher's time demands that all classes thus taught be scheduled in succession; and since the teacher can rarely pay more than one visit each week to the junior high school grades, the time-allotment for each grade is usually no more than two forty- or forty-five-minute periods. Time-allotments in practical arts in the schools employing traveling teachers are as follows:

TABLE XXIV

MINUTES PER WEEK GIVEN TO PRACTICAL ARTS IN SCHOOLS EMPLOYING TRAVELING TEACHERS

SCHOOLS	FOR BOYS			FOR GIRLS		
	VII	VIII	IX	VII	VIII	IX
Eastwood.....	80	80	40	(80)	(80)	0
Knowlton.....	80	80	0	(120)	(80)	0
Lundy.....	0	85	85	80	85	85
Mason.....	70	70	60	160 ¹	140 ¹	130 ¹
Nestor.....	(80)	(120)	(120)	80	80	80
Oakwood.....	0	60	70	(60)	(60)	(70)

¹ Separate supervisors for cooking and sewing.

Figures in parentheses show time-allotments to classes conducted by teachers regularly attached to the staffs of the schools, and not by traveling teachers. Though correspondence between the two sets of allotments is by no means exact, the time given by the supervisor appears in considerable measure to set the standard.

With one exception (Eastwood), the six schools included in this table are found in systems which provide no senior high schools. They represent five of the seven schools of this type which offer courses in practical arts for either boys or girls. For such schools this apparently necessary restriction of time-allotments in practical arts would seem to demand definite recognition in the planning of a program of studies.¹

The second matter which has general bearing is that of the length of the school day and the number of daily class-periods provided.

Length of the School Day.—The school day varies in the nineteen schools from one of 240 minutes to one of 320 minutes of net class time. For all the schools together the median is 280 minutes—twenty minutes less, it is to be noted, than the standard suggested by the State.² Six of the eight junior-senior high schools organize their schedules on the basis of this median. The separate schools show relatively little agreement. Their median falls at 270 minutes; but only three of the eleven schools provide a school day of this length, two of the remaining schools offering one of 280 minutes, and the six others scattering from 240 minutes to 310 minutes.

Provision of Regular Class-Periods.—In the provision of regular class-periods there is similar difference in practice between the combined and the separate schools. All but one of the former have organized schedules of periods equal in length, six of the

¹ Time given by special teachers to drawing, music, and penmanship is in a number of schools subject to similar restrictions. Classes in these subjects, however, are ordinarily conducted in the absence of the special teacher by a teacher regularly attached to the staff of the school; so that the necessary adjustments involved relate to the mechanical process of schedule-making rather than to the establishment of a general program of studies for the school.

² Commonwealth of Massachusetts: *Junior High School Manual*, p. 20. Bull. of Dept. of Educ., 1921, No. 5.

schools offering seven forty-minute periods and one eight forty-minute periods. The remaining school provides an irregular schedule, the length of its periods varying from day to day and to some extent from one period to the next. Of the separate schools only four have periods equal in length, — one providing six forty-five-minute periods; a second, six periods of forty minutes; a third, seven of thirty-five minutes; and the fourth, nine of thirty minutes.

No brief can be held for the reduction of the class schedule to a clockwork uniformity merely for the sake of uniformity. Nor have we standards which enable us to determine the exact length of school day appropriate to a given community. But experience with departmental organization and with promotion by subject has shown the advantage of class-periods approximately equal in length. Since the majority of these schools deal, moreover, with groups of pupils whose previous educational experiences have been essentially similar in nature, whose present circumstances are alike, and whose educational goals are approximately the same, one might reasonably expect general agreement as to the amount of time which the schools demand for their daily work. The lack of such agreement and the apparent absence in many instances of systematic planning in the establishment of class-schedules suggest — especially in the case of the separate junior high schools — a large degree of “muddling through” rather than thoughtful professional consideration of the various factors involved.¹ To the irregularity of class-schedules in particular may doubtless be traced a large share of the difficulties encountered by these schools in the matters of combination of grade-groups, departmental teaching, and promotion by subject. In the case of those schools whose schedules fall below the median in length, furthermore,

¹ This is written with full recognition of the special difficulties of schedule-making in the small school, already noted in connection with the organization of departmental teaching and promotion by subject (pages 82-83). Three of the schools with irregular schedules (including the junior-senior high school mentioned above) have obviously organized such schedules to meet special difficulties in the local situation. Nearly half of the separate junior high schools, however, provide schedules similar in form to those of the elementary-school teacher who has only the needs of her single class to consider.

there is at least reasonable room for question as to whether the school is doing all in its power to provide the broadest possible experience for its pupils.

The length of the school day and the number of daily class-periods best adapted to the needs of the small junior high school will receive further attention in connection with a suggested program of studies for such a school.¹ It is sufficient for our immediate purpose to have indicated the wide variation in practice existing in the Massachusetts schools, and the handicaps which certain of the extremes in this variation may place upon attempts to realize the junior high school objectives.

General Summary. — The general view here afforded of programs of study in the small Massachusetts junior high schools reveals little fundamental revision of the traditional work of the seventh, eighth, and ninth grades. Neither the separate schools nor the junior-senior high schools can lay claim as a group to extensive modification of their offerings in the light of established junior high school practice; and the separate schools, influenced by their need to meet the standards of out-of-town senior high schools, have in a number of instances introduced programs of excessive rigidity and formalism. The latter group of schools would seem to have been influenced so largely by elementary-school tradition, moreover, as to have been handicapped in adapting even their general class-schedules to the needs of junior high school work. Explanation of conditions in both types of schools is to be found in part, of course, in the special difficulties created by small enrollments, teaching staffs of inadequate size, lack of necessary qualifications on the part of available teachers, and unsuitable housing and equipment. But these factors can hardly account for the very general lack even of significant beginnings in revision of the program of studies. The greatest obstacle to attainment of junior high school objectives in these schools would seem to be the absence of a definitely constructive administrative and supervisory policy.

¹ See Chapter XIII.

CHAPTER XI

EXTRA-CURRICULAR OFFERINGS IN MASSACHUSETTS SCHOOLS

Scope of Extra-Curricular Activities in Massachusetts Schools. — In an earlier section of this study ¹ it was suggested that a complete extra-curricular program for the junior high school may be expected to embrace special home-room organizations, pupil participation in certain phases of general school government, the work of various clubs (including the issuance of school publications), the extra-curricular athletics of the school, general school assemblies conducted by the pupils, certain purely social activities, and various school-and-community events. Uniform data with respect to social activities and school-and-community events are not at hand for the schools under consideration. The extent to which these schools provide for activities of the other types is indicated in Table XXV.

Club Activities. — The form of extra-classroom activity most widely recognized in the small Massachusetts schools is that having to do with pupils' clubs. Fourteen of the schools conduct work of this type — in most instances in addition to more formally organized activities in connection with a school paper, school musical organizations, or a debating team. In but six cases, however, has clubwork been granted a position in the weekly schedule; and in two of these cases only a part of the work is thus presented. For the majority of the schools in which they have been established the club activities would seem as yet to be largely on an experimental basis.

Extra-Curricular Athletics. — Systematic provision for extra-curricular athletics is of next most common occurrence. Fourteen of the nineteen schools include supervision of boys' athletics in their programs of work, and eleven schools provide such supervision for girls. It is perhaps significant that only one

¹ Chapter V.

school has made athletics for either boys or girls so important a part of its program as to require the participation of every pupil in some form of sport. In view of the handicaps as to suitable equipment under which most of the schools are obliged to work,

TABLE XXV

EXTRA-CURRICULAR OFFERINGS IN SMALL MASSACHUSETTS JUNIOR HIGH SCHOOLS

SCHOOLS	PUPIL PARTICIPATION IN		CLUBS			SCHOOL PAPER	MUSICAL ORGANIZATIONS		DEBATING TEAM	REGULAR ASSEMBLY		ATHLETICS			
	Home-Room or Class Organiz.	General School Organization	Voluntary	Required	In School Time		Orchestra	Glee Clubs		Conducted by Teachers	Conducted by Pupils	Boys		Girls	
												Voluntary	Required	Voluntary	Required
Arnold.....	—	X	—	—	—	—	—	—	—	X	—	X	—	X	—
Benton.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Corwin.....	X	—	—	—	—	—	—	—	—	—	—	X	—	X	—
Dexter.....	X	—	—	X	X	—	—	—	X	—	X	—	—	—	—
Eastwood....	X	—	X	—	—	—	X	X	—	—	—	X	—	X	—
Fremont....	X	X	—	X	X	—	—	—	—	X	X	X	—	X	—
Gordon.....	—	—	X	—	—	—	X	—	—	—	—	X	—	X	—
Harlow.....	—	—	X	—	X ¹	X	X	—	—	—	—	X	—	—	—
Jackson.....	X	—	—	X	X	—	—	X	—	X	—	—	—	—	—
Knowlton...	—	—	X	—	—	—	—	—	—	—	—	X	—	—	—
Lundy.....	—	X	X	—	X ¹	—	—	—	X	X	X	—	X	—	X
Mason.....	—	X	X	—	—	X	X	—	—	—	X	X	—	X	—
Nestor.....	—	—	—	X	X	X	—	—	—	—	—	X	—	X	—
Oakwood....	—	—	X	—	—	—	—	—	—	—	—	X	—	—	—
Parker.....	—	—	X	—	—	—	—	—	—	—	—	X	—	X	—
Quentin....	X ²	—	X	—	—	X ³	X	—	—	—	—	X	—	X	—
Raleigh....	—	—	—	—	—	—	X	X	—	X	X	—	—	—	—
Selden.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tarbell.....	—	—	X	—	—	—	—	—	—	X	—	X	—	X	—
Comb. Sch.	4	2	2	□	2	0	3	2	1	3	3	5	0	5	0
Sep. Sch.	2	2	8	2	4	4	3	1	1	3	2	8	1	5	1
Totals...	6	4	10	4	6	4	6	3	2	6	5	13	1	10	1

and in view also of their frequent lack of teachers adequately prepared for such work, the offering of voluntary athletics for both boys and girls doubtless represents the maximum provision generally possible.

¹ School time given to certain clubs only.

² Class organization in one grade.

³ Junior high school representatives on senior high school paper.

Pupil Participation in School Government. — Pupil participation in school government proves to be a phase of the extra-curricular program given no serious attention by many of the schools. Though home-room or class organizations are found in six instances, only four schools provide any plan for a general pupil-organization, and in only one school do we find provision for both types of activity. Whether through want of confidence in the feasibility or the value of pupils' participation in the direction of the school's work, or through lack of familiarity with sound methods of procedure, the schools as a group have apparently made but half-hearted efforts in this direction.

School Assemblies. — Least adequately provided for is the school assembly. Lack of adequate equipment would account for failure to offer regular assembly activities in seven schools,¹ but we find such activities neglected in eleven schools of the nineteen. Of the eight schools which do provide regular assemblies, five give important share to pupils in the assembly programs, but only two make the pupils (under the guidance of their teachers) primarily responsible for practically all such programs. The factors making for lack of attention to pupils' participation in the direction of their work, especially through general pupil-organizations, are doubtless largely responsible for the absence of marked attention to the school assembly.

Junior-Senior High Schools and Separate Schools Compared. — As between the junior-senior high schools and the separate junior high schools, the most noteworthy differences relate to club activities, the provision of extra-curricular athletics for girls, and the establishment of home-room or class organizations. Despite the advantage held by the eight combined schools in their larger teaching staffs, only four of these schools, as compared with ten of the eleven separate schools, have made systematic provision for junior high school clubs. The separate schools have without question proved themselves more alert to the values of such work as a supplement to their curricular offerings than have the junior-senior high schools. The latter, however, have given somewhat greater attention to provision of athletics for girls than have the

¹ See Table XX.

separate schools as a group, all of the combined schools which offer any systematic supervision of athletics having included girls as well as boys in their programs. Finally, the combined schools have more frequently than the separate schools provided for one type or another of pupil-organization. To such provision the class-organizations generally existing in the senior high school have doubtless offered a stimulus. That a large degree of significance is to be attached to any of these differences can hardly be maintained. They are here noted merely as possible — though by no means uniform or inevitable — tendencies of which those who are engaged in work in either type of school should be aware.

Promising Elements in the Present Situation. — From this examination of extra-curricular activities in the nineteen schools as a group we may draw a number of favorable inferences. The fact that only two of the schools have no extra-curricular programs whatever would seem to indicate a considerable measure of realization of the junior high school's responsibility for a type of education other than that of formal classwork. The extensive programs undertaken by a number of the schools — Fremont, Lundy, and Mason in particular — give evidence that small enrollment and limited teaching staff need be no insuperable obstacles to such work. In the nineteen schools together, furthermore, are represented all the types of activity which go to make up the recognized extra-curricular program;¹ so that there is reason to believe that the essential features of this program are actually as well as theoretically possible to the small school.

Detailed Examination of Club Activities. — So far as concerns any single feature of their extra-classroom work, perhaps greatest encouragement is to be derived from the introduction of club activities in a large proportion of the schools. As an indication of the types of clubwork possible in the small school, the specific activities conducted in each school are presented in Table XXVI. The various clubs are here grouped in two classes: clubs operated in conjunction with agencies outside the school (Boy and Girl

¹ Lundy and Mason, and possibly others of the schools, give specific attention to social activities and to school-and-community events.

Scouts, Campfire Girls, and County Extension Clubs), and clubs for which the school itself is primarily responsible. Five of the schools maintaining club activities depend entirely on externally sponsored organizations; three of the schools organizing their own clubs give place also to these outside clubs. In the nine schools offering special activities of their own there are represented approximately twenty-five different types of organizations — almost all developing their interests, it is to be noted, from the “regular” work of the school, but differing from each other in the specialized directions which these interests take.

TABLE XXVI

EXTRA-CURRICULAR CLUB ACTIVITIES IN SMALL MASSACHUSETTS JUNIOR HIGH SCHOOLS

SCHOOLS	OUTSIDE CLUBS				CLUBS ORGANIZED WITHIN THE SCHOOL																										
	Boy Scouts	Girl Scouts	Campfire Girls	Co. Extension ²	Athletic	Agriculture	Bird	Camera	Canning	Debating	Dramatic	Excursion	Game	Garden	Hunting	Knitting	Literature	Lunch-Box	Music	Nature	Photography	Puzzle	Radio	Reading	Science	Sewing	Social	Stamp	Study	Ukelele	No. of Sch. Clubs
Dexter ¹							X			X		X				X					X							X		4	
Eastwood . . .			X								X																				4
Fremont ¹ . . .			X	X	X						X								X								X				7
Gordon	X		X	X			X		X					X	X						X			X				X			4
Harlow	X																		X						X						7
Jackson ¹ . . .					X	X						X		X	X						X				X				X		4
Knowlton . . .																															2
Lundy	X	X								X																				X	3
Mason										X	X						X			X											3
Nestor ¹ . . .											X							X					X								3
Oakwood . . .					X																		X								1
Parker				X															X							X					2
Quentin . . .																										X					2
Tarbell			X		X					X																					2
Totals	3	1	1	6	1	2	1	1	1	2	4	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2	1	1	

A comparison of the number of clubs organized within each school with the number of teachers assigned to junior high school

¹ These schools require membership in one club. Jackson has organized a Study Club to which are assigned pupils whose classwork is unsatisfactory. — The schools not thus designated place their clubwork on a purely voluntary basis.

² County Extension Clubs emphasize handicrafts (including agriculture) for boys, and home-making for girls.

³ Dexter offers four clubs only in each half-year.

work ¹ suggests in nearly all cases the possibility of expansion of the club program. Even including the school paper, the formal musical organizations, and the debating teams as parts of the club programs, only two of the schools — Harlow and Tarbell — offer as many different activities as the sizes of their teaching staffs would seem to permit. The schools which are content merely to sponsor external organizations, drawing leaders in most cases from outside the school itself, have taken little apparent advantage of the special opportunities which teachers within the school might provide. In view of the restriction on number and range of club activities necessarily imposed by the small size of teaching staffs, it is important that each school enlist as many of its teachers as possible in such work. Hence the activities here presented represent for most of the schools a promising beginning, rather than an achievement of the most extensive programs possible.

General Defects in the Extra-Curricular Programs. — One of the most serious defects in the extra-curricular programs as a group consists in the general lack of provision for group activities more complex than those of the small class-unit. We have previously noted ² the special handicap under which the small junior high school must work because of the difficulty of affording opportunities, with a limited enrollment, for large-group, relatively impersonal co-operation. The need for special effort in this direction would seem to be unusually apparent; yet fewer than one-third of the schools appear to have given definite attention to large-group activities, either through a general school organization or through pupil responsibility for assemblies.

A second defect, no less serious than the first, is found in the neglect of home-room activities. Though in practically all these schools the home room is recognized as an administrative unit, in relatively few instances does it serve other than this purely formal purpose. Yet under proper leadership the organization of pupils in the home room may afford, to an extent possible through no other phase of the school's work, opportunities for guidance, for the development of individual and small-group interests, for the

¹ See Table XII B.

² Pp. 64ff.

stimulation of worthwhile activities in great variety, initiated and carried to completion by the pupils themselves. That the small enrollments of these schools place the teachers perforce in more intimate contact with pupils than is generally possible in large schools is no sound argument for the omission of this phase of the junior high school's work. Without definite planning for home-room activities and systematic encouragement of such activities through some form of organization which gives both incentive and responsibility to the pupils themselves, there can be at best only random and usually ill-considered provision either for individual and small-group guidance or for training in self-initiated and self-directed enterprises.¹

It is hardly necessary to point out the need for extension of the programs of many of these schools to include supervision of athletics for girls and boys both. The traditional conception of the school's function as that of providing "book-learning" alone would seem still to be operative in a number of the small communities. The needs of training for health, for social conduct, and for worthwhile use of leisure alike demand inclusion in the school's program not merely of formal physical training, but of development of interest and skill in athletic sports, both individual and social.

Summary. — Considered as a whole, the extra-curricular programs of the small Massachusetts schools — particularly in the matter of club activities — seem to represent a more promising attack upon the special problems of the junior high school grades than do the formal curricular programs. Though the extra-classroom work is nowhere as extensive in scope as it should properly be in the light of present educational theory, the programs undertaken by the majority of the schools are such as to indicate a realization of the general need for work of this type. Aside from the limitations imposed by small enrollments, the

¹ Club activities provide, of course, valuable training of this sort. But the specialized enterprises which they involve offer in few cases the opportunities for guidance in general "living together," for group attention to problems and needs arising from wide variations in individual interests, and for the development of a broadly inclusive group spirit, which the home-room organization should offer.

defects which we find are due in part to inadequate housing and equipment, and doubtless in part also to teachers' lack of training for the special types of work involved. Especially serious is the general absence of extensive opportunity for participation by pupils in the conduct of school activities. The frequency of this omission would suggest a lack of realization on the part of administrative officers as well as teachers of the total implications of the junior high school reorganization.

PART IV

THE LIMITATIONS AND POSSIBILITIES OF
THE SMALL JUNIOR HIGH SCHOOL

CHAPTER XII

TYPES OF PROCEDURE FEASIBLE IN THE SMALL SCHOOL

Summary of Types of Procedure Examined. — It has been our purpose in the preceding chapters to determine, first, to what extent the usual junior high school procedure is feasible in the small school; second, what commonly accepted procedure cannot be employed; and third, in how far through other means the small school may attain the objectives of the reorganization. Our preliminary analysis of junior high school practice¹ classified the procedure employed in large schools in terms of organization of subject matter, teaching methods, the provision of social experience through extra-curricular activities, systematic guidance, and general organization of the junior high school grades. The feasibility of such procedure in the small junior high school has been studied on two different bases. We have been able to examine certain practices in the light of mathematical relationships existing between school enrollments and various forms of administrative organization. The practices thus studied are those of provision for election and promotion by subject (both included under the general topic of organization of subject matter), special classification of pupils (which touches on teaching method as well as upon subject-matter organization), departmental teaching (a phase of teaching method), the conduct of extra-curricular activities in general, and the organization of the junior high school grades. The remaining practices included in the preliminary analysis have been studied through a survey of conditions commonly existing in small schools, but not immediately determined by the schools' enrollments. These practices consist in the revision and reorganization of traditional teaching materials and the introduction of "general" courses (both relating to the general topic of organization of subject matter), supervision

¹ Pages 17-19.

of study and the use of appropriate classroom methods (problems touching upon general teaching method), and provision for the systematic guidance of pupils. Study of the small schools throws further light, moreover, on the feasibility of provision for extra-curricular activities. Hence from one point of approach or another the study as a whole has brought to attention all of the important procedures included under the five major classifications. It is our purpose in the following pages to review the detailed conclusions reached with respect to these procedures. This review should serve not merely to indicate the possibility of attaining junior high school objectives in the small school through practices accepted by large schools or through substitute practices, but to provide a basis for later brief consideration of means by which improvement may best be sought in the work of the small junior high school.

Types of Conclusions Reached. — According to the methods of study which it has been possible to use, we have reached two types of conclusions: first, certain conclusions valid for all junior high schools adopting the customary grade- and class-organizations; and second, conclusions based on conditions existing in small Massachusetts junior high schools, and valid for all schools only in so far as the small Massachusetts schools are typical of those of the country at large. Of the first sort are our conclusions with respect to elective offerings, promotion by subject, classification of pupils, and departmental teaching, and certain conclusions relating to extra-curricular activities. The importance of clear distinction between findings bearing on these procedures and conclusions based merely on local studies makes desirable the separate presentation of the two sets of conclusions.

1. *Conclusions Valid for All Small Schools*

Our generally valid conclusions must themselves be separately classified. Study of enrollments, and study of the size of teaching staffs as conditioned by enrollments, show tangible variations according to the size of schools in the feasibility of the first four types of procedure involved. Such study reveals less clearly measurable, though still evident and significant, variations with

respect to feasible procedure in the matter of extra-curricular activities. Conclusions of the more exact sort we may present in terms of schools of differing enrollments. The less measurable conclusions must be presented for small schools in general, without distinction as to specific enrollments.

a. Conclusions Stated in Terms of Specific Enrollments

Feasibility of Provision for Election, Promotion by Subject, Special Classification of Pupils, Departmental Teaching. — The extent to which schools of differing enrollments may expect economically to employ (a) elective classes, (b) promotion by subject, (c) special classification of pupils, and (d) departmental teaching, we have found to be as follows:

Schools enrolling an average of from 50 to 60 pupils per grade, under conditions of adequate teaching staff and equipment, (a) may inaugurate any desired program of election on a paired-elective basis. With an enrollment of fewer than 55 pupils per grade, they cannot expect to provide any substantial program of election on the one-out-of-three basis.

(b) They may rarely expect to provide a complete system of promotion by subject, even through combination of the teaching staff with that of the elementary school or senior high school; but such adjustments as may need to be made may in the majority of cases be accomplished with little difficulty. The junior-senior high school organization will prove of definite advantage in this respect.

(c) Such schools will find it feasible to form two groups of pupils in each grade, according to ability or according to vocational specialization.

(d) Whether combined with elementary or senior high schools, or organized as separate schools, they may introduce a satisfactory system of departmental teaching. They will find the junior-senior high school organization of advantage, however, in providing such a system.

Schools enrolling an average of from 35 to 50 pupils per grade, under conditions of adequate teaching staff and equipment, (a) may expect to offer any desired program of election on a paired-elective basis.

(b) Such schools can afford promotion by subject only by adjusting the schedule to the needs of individual pupils. The junior-senior high school organization will prove of definite advantage in this respect.

(c) They will find grouping of pupils according to ability or according to vocational specialization possible in most required classes, because of the necessary division of grade-sections. Such division will entail, however, the organization of many classes of less than normal size, and must be compensated for by all possible grade- and section-combinations.

(d) Satisfactory departmentalization of teaching will ordinarily be feasible in separate three-year schools of this enrollment. It will seldom be feasible in the two-year school which enrolls fewer than 45 pupils per grade. For two-year schools enrolling fewer than ninety pupils, combination with the elementary school or the senior high school is ordinarily necessary to provide appropriate departmentalization; and three-year schools will find such combination of advantage. Partial abandonment of departmental teaching may occasionally be demanded by the need for arranging promotion by subject.

Schools enrolling an average of from 30 to 35 pupils per grade, under conditions of adequate teaching staff and equipment, (a) may offer one-third or more of their work on a paired-elective basis without reducing their average class-enrollments below the standard.

(b) They can offer promotion by subject only by adjusting the schedule to the needs of individual pupils. Such adjustment may in extreme cases still fail to avoid more or less serious sacrifice on the part of the individual pupils concerned. The junior-senior high school organization will prove of definite advantage in this respect.

(c) Such schools cannot expect to make special groupings of pupils.

(d) They will ordinarily find satisfactory departmentalization of teaching impossible without combination with the elementary school or the senior high school. Partial abandonment of departmental teaching may be demanded by the need for arranging promotion by subject.

Schools enrolling an average of from 25 to 30 pupils per grade, under conditions of adequate teaching staff and equipment, (a) may expect to offer a substantial program of election on the paired-elective basis only by means of combination of grades in elective classes or required classes or both. They will find the junior-senior high school organization of definite advantage in the provision of suitable grade-combinations.

(b) They can offer promotion by subject only by adjusting the schedule to the needs of individual pupils. This adjustment may still fail to avoid more or less serious sacrifice on the part of the individual

pupils concerned. The junior-senior high school organization will prove of definite advantage in this respect.

(c) Such schools cannot expect to make special groupings of pupils. They will ordinarily be obliged to employ certain grade-combinations in required subjects in order to provide compensation for elective classes in which grades cannot be combined.

(d) Satisfactory departmentalization of teaching will usually prove impossible without combination with the elementary school or the senior high school. Inability to provide such departmentalization may make necessary a curtailment of the program of studies. Partial abandonment of departmental teaching may be demanded by the need for arranging promotion by subject.

Schools enrolling an average of fewer than 25 pupils per grade, under conditions of adequate teaching staff and equipment, (a) cannot offer any substantial program of election with the expectation of attaining an economical average of class-enrollments. If electives are to be offered, combination of grades in elective classes will be necessary to make possible an average class-enrollment even as high as the average grade-enrollment.

(b) They can offer promotion by subject only by adjusting the schedule to the needs of individual pupils. Such adjustment may still fail to avoid serious sacrifice on the part of the individual pupils concerned. The junior-senior high school organization will prove of definite advantage in this respect.

(c) They may expect to attain a normal average of class-enrollments only by breaking down grade-distinctions in at least part of their work. Schools of fewer than 22 pupils per grade cannot attain a normal average without the creation of highly undesirable teaching situations.

(d) Schools of fewer than 25 pupils per grade will find satisfactory departmentalization of teaching impossible without combination with the elementary school or the senior high school. Inability to provide such departmentalization is likely to make necessary a curtailment of the program of studies. Abandonment of departmental teaching may be demanded by the need for arranging promotion by subject.

As judged in terms of enrollment alone, it is apparent that a school of given size is able to offer the advantages of these four phases of administrative organization in varying degrees. Elective classes may be provided on a basis paralleling that of the large junior high school in the school of no more than thirty pupils per grade. Promotion by subject, however, cannot be assured in thoroughly flexible form in the school of fewer than sixty pupils

per grade; though adjustments to meet individual needs should not be difficult in the school of fifty pupils per grade. Special classification of pupils (including special provision for over-age pupils from the lower grades) becomes uneconomical when the school's enrollment falls below fifty pupils per grade. An appropriate plan of departmental teaching demands an average grade-enrollment of at least forty-five pupils in the two-year school and thirty-five in the three-year school.

Enrollment Necessary for Complete Adoption of Large-School Procedures. — Judged solely in terms of these more or less mechanical features of administrative organization, the complete feasibility in the small junior high school of procedures common to the large school may thus fairly be considered to end when enrollment falls below fifty pupils per grade. Schools of smaller enrollments — three-year junior high schools of fewer than one hundred fifty pupils, and two-year junior high schools of fewer than one hundred pupils — must adopt practices differing in noteworthy respects from those of the larger systems. From a purely administrative standpoint, in other words, the small junior high school may be defined as one having an average enrollment of fewer than fifty pupils per grade.

Effectiveness of Substitute Procedures. — The special procedures adopted or possible of adoption in the small school to allow approximation of the methods employed in the large school would seem to permit only partial attainment of the objectives of the reorganization. The fact that special classification of pupils is impracticable in schools of fewer than thirty-five pupils per grade means that necessary differentiation of methods and of general subject matter can be attained only through more or less of individual instruction within a heterogeneous class. If heterogeneous classes smaller than the special groupings in large schools could economically be provided, full compensation might be sought in skillful teaching; but economy demands the maintenance of a class-average of twenty-five pupils despite a wide range of individual differences. Hence only in schools of fewer than twenty-five pupils per grade may we expect any large degree of compensation through unusually small classes. And in these

schools, as well as in schools of larger enrollments, the grade-combinations necessary to allow the offering of adequate elective programs handicap the adaptation of methods and materials to individual needs. Such combinations also prevent in some measure the gradual introduction of election upon which educational theory insists. The difficulty of affording appropriate departmentalization of teaching places other obstacles in the way both of gradual transition from the old type of organization to the new, and of provision for skillful teaching. Need for adopting promotion by pairs of subjects or special promotions in certain subjects at the expense of others implies a compromise too obvious to demand special analysis. Each of these types of special procedure, though offering some degree of compensation for handicaps, serves as a makeshift only, and not as a full substitute for the practice whose place it attempts to fill.

Desirability of Junior-Senior High School Organization. — The effort to approximate large-school practice, whether through direct imitation of this practice or through substitute procedures, offers strong argument for the sacrifice of completely separate organization, housing, and staff on the part of the small junior high school. As between combination with the elementary school and combination with the senior high school, the latter form of organization would seem to offer greatest promise of effectiveness. The advantage of either type of combination varies, however, according to each of the four phases of procedure which we have been considering. The combined organization holds out no promise in the matter of special classifications. It is practically essential to adequate departmental teaching in schools of fewer than thirty-five pupils per grade. In schools of fewer than thirty pupils per grade combination affords definite advantage in the offering of electives; and in all the schools included in this analysis it may facilitate provision for promotion by subject. Whether the possible sacrifice of unity entailed by combination is of greater moment than the handicaps upon flexible procedure resulting from separate organization is a problem for the present capable of solution only in terms of judgment, not of objective analysis. The facts disclosed in this study with respect to

procedure in combined schools as compared with that in separate schools would seem in most respects to favor the junior-senior high school organization for all junior high schools enrolling fewer than approximately fifty pupils per grade.

Relative Advantages of Two-, Three-, and Four-Year Schools. — The data which favor the junior-senior high school as compared with the separate junior high school apply with equal force to the three-year school as compared with the school of two years, and to the four-year school as compared with one of three years. From the standpoint of administrative procedure alone, in other words, restriction of the small junior high school to a grouping of three grades cannot readily be justified.

General Conclusions. — Hence a review of our findings with respect to procedures affected in definitely measurable degree by the small school's enrollment leads to the following general conclusions :

1. The school of fewer than fifty pupils per grade cannot economically adopt in complete form the procedures with respect to the offering of electives, promotion by subject, classification of pupils, and departmental teaching which are commonly employed in large schools. Its ability to make use of these procedures decreases with decrease in enrollment.

2. Owing in large measure to the unusual burdens which they place upon classroom teachers, the special procedures feasible in the small school under the customary system of class-organization cannot serve as full substitutes for the procedures accepted as desirable in larger schools.

3. Attainment of the objectives of the junior high school reorganization through the use of accepted administrative practice will be promoted by adoption of the junior-senior high school organization (or of an extended junior high school organization) for schools having an enrollment of fewer than fifty pupils per grade.

b. Conclusions Stated in Terms of Limited Enrollments in General

Feasibility of Extra-Curricular Activities. — Study of the effect of limited enrollment and a small teaching-staff upon provision for extra-curricular activities has revealed the need for curtailment of certain phases of the extra-curricular program rather

than for adoption of procedures markedly different from those found in large schools. The conclusions reached with respect to the possible effectiveness of extra-curricular activities in the small school are as follows:

Small junior high schools in general need not be prevented by limited enrollment alone from undertaking any one of the recognized activities included in the extra-curricular program.

(a) Home-room activities may be carried on as effectively as in the large school.

(b) The general pupil-organization and the school assemblies must of necessity fail, in proportion to the limitation of the school's enrollment, to provide desirable training in relatively large-group and impersonal social relationships. The junior-senior high school organization offers important advantages in its provision of more varied social experience than that which can be afforded by the small separate school.

(c) Club activities must be restricted in number and diversity in proportion to the limitation of enrollment and of the number of teachers available as sponsors. In providing a larger number of teachers from whom sponsors may be chosen, combination with the senior high school offers an advantage here also.

(d) After-school activities are subject in the small school to restrictions similar to those affecting other phases of the extra-curricular program.

General Conclusions. — Detailed consideration of the extra-curricular program of the small junior high school has shown the impossibility of removing completely the handicap under which such schools are placed. Hence the general conclusions resulting from a survey of the less measurable effects of limited enrollment are in the nature of an affirmation of those previously offered. They indicate (1) decreasing ability with decrease in enrollment to afford the full benefits of an extra-curricular program, (2) inability to substitute procedures which will wholly compensate for the activities which cannot be provided, and (3) the desirability of adoption of the junior-senior high school organization.

2. *Conclusions Based on Study of Massachusetts Schools*

Significance of Conclusions Based on Study of Massachusetts Schools. — The conclusions based upon study of conditions in

small Massachusetts junior high schools, like the second group of generally valid conclusions, must be presented in the main without reference to specific enrollments. It is of highest importance, however, that they be distinguished from this latter group as well as from the more specific conclusions relating to administrative organization. They differ from the statements founded on study of enrollments not merely with respect to the generality of their application, but more especially in the variableness of the limitations which they imply. The former relate to limitations necessarily characteristic of the small school, whereas the conclusions now to be examined involve restrictions on procedure which are by no means inevitable. Such restrictions arise from present numbers and qualifications of teachers, from the types of supervision afforded, and from conditions of housing and equipment — factors in each case definitely subject to improvement. While it is to our preceding conclusions, therefore, that we must look for indications of necessary limitations on the work of the small school, we may find in the group immediately to be reviewed certain clear indications as to measures for increasing the school's effectiveness.

Study of the nineteen Massachusetts schools has made it possible to determine the present feasibility in these schools as a group of (a) the desirable revision and reorganization of traditional subject matter, (b) the introduction of "general" courses, (c) supervision of study, (d) the use of appropriate classroom methods, (e) provision for the systematic guidance of pupils, and (f) the conduct of extra-curricular activities. The conclusions reached with respect to each of these types of procedure are as follows:

Feasibility (a) of Revision of Traditional Subject Matter. — Revision and reorganization of traditional subject matter are generally prevented both by the lack of appropriate training for junior high school work on the part of the great majority of teachers in these schools, and by the frequent absence of consistent and constructive policies of administration and supervision. The separate junior high schools suffer in principal measure from teachers' failure to possess desirable academic education; the junior-senior high schools are handicapped by their teachers' lack of adequate professional training.

(b) *Of Introduction of "General" Courses.* — The introduction of "general" courses is opposed by the same conditions which tend to prevent revision of traditional subject matter. In the case of the practical arts it is made difficult in all but two schools by lack of necessary equipment, and in seven schools by inadequate housing. Equipment in the separate schools proves to be slightly superior to that in the junior-senior high schools.

(c) *Of Supervision of Study.* — Complete supervision of study is impossible in approximately two schools in five because of the small size of teaching staffs. It is prevented in practically all the schools either by lack of attention to necessary administrative provisions or by inadequate classroom accommodations. Realization of full value from even partial supervision of study is doubtful in the junior-senior high schools because of teachers' lack of experience and of adequate professional training.

(d) *Of Use of Appropriate Classroom Methods.* — Use of appropriate classroom methods (socialized classwork, the problem-project method, and the like) is prevented in both separate and combined schools by teachers' general lack of experience or over-experience, by lack of training on the part of three-fourths of the teachers for junior high school work, and by the frequent absence of provision for adequate supervision of teaching. Inadequate classroom accommodations handicap the use of such methods in two-fifths of the schools; and the absence of provision for school libraries seriously limits freedom in teaching in practically all. The influence of senior-high-school tradition is marked in the combined schools as a group, and that of elementary-school tradition in the separate schools.

(e) *Of Provision for Guidance.* — Provision for systematic guidance of pupils tends to be prevented by the absence of consistent and constructive administrative policy, and by teachers' general lack of adequate professional or academic training.

(f) *Of Extra-Curricular Activities.* — Conduct of extra-curricular activities is handicapped by lack of adequate professional or academic training on the part of teachers, by the absence of consistent and constructive administrative policy, and especially by lack of adequate housing and equipment. The latter factor tends especially to prevent school assemblies, the introduction of a broad range of club activities, and extensive provision for extra-curricular athletics.

Judgment of the feasibility of each of these types of procedure is based not alone on a study of those factors which aid or pre-

vent its use, but on data as to its actual employment in the schools under consideration. Though opportunity for examination of these procedures in actual practice was necessarily limited, such data as could be secured (programs of curricular and extra-curricular offerings in each school; information with respect to guidance, supervision of study, and methods of teaching employed; and observation of classwork in progress) tend to support the conclusions here advanced.

Adoption of Substitute Procedures. — These conclusions may be summed up in the general statement that the small Massachusetts schools as a group cannot at present avail themselves of the commonly accepted junior high school procedures concerned with revision of subject matter, redirection of teaching, provision of varied social experience, and establishment of systematic guidance. The limitations upon their work are such, moreover, as to prevent their adoption of successful substitutes for these procedures. Bound down by the training and experience of their staffs to the very methods which it is their purpose to change, they can neither make use of the practices found desirable in large schools nor develop others which may be better suited to their needs.

Relative Merits of Junior-Senior High School and Separate Junior High School. — From examination of the factors underlying these procedures in the separate schools as compared with corresponding factors in the combined schools we have been able to gain little evidence as to the essential superiority of one type of organization over the other. Though teachers and principals in the junior-senior high schools have received broader academic training than those in the separate schools, they lack in a large proportion of cases the professional training which the latter group bring to their work. The element of compromise would appear to be so largely involved in the selection of teachers for each type of school as to make the advantage of one type over the other almost impossible to judge in general terms. Nor can the inferiority in equipment found in the combined schools properly be considered an argument for the separate organization. It seems rather to offer illustration merely of the tendency of the

small community to overtax its resources for the sake of providing a complete system of secondary education. Examination of the factors of teaching, supervision, and equipment in these schools thus reveals no tendencies which offset the advantages previously noted in the junior-senior high school organization, though it emphasizes the desirability of restricting the secondary school as a whole to that number of grades which the local community can adequately support.

General Conclusions. — As a result of our study of the small Massachusetts junior high schools we may thus offer the following general conclusions :

1. The small Massachusetts schools as a group cannot now avail themselves in any complete form of junior high school procedures with respect to revision and reorganization of traditional subject matter, introduction of "general" courses, supervision of study, use of appropriate classroom methods, provision for systematic guidance, and conduct of extra-curricular activities.

2. They are unable under present conditions to substitute for these procedures others which may be better suited to their needs.

3. There appears no conclusive evidence of the superiority of the junior-senior high schools over the separate junior high schools in the factors which determine use of these procedures. The better equipment of the latter group of schools, however, emphasizes the desirability of restricting the total number of grades in the secondary school as a whole to that which the local community can adequately support.

3. The Attainment of Junior High School Objectives in the Small Massachusetts Schools

Present Inability of Massachusetts Schools to Attain Junior High School Objectives. — In so far as present conditions in the small Massachusetts junior high schools are other than temporary, comprehensive realization of junior high school objectives in these schools is well-nigh impossible. Whatever the degree to which their enrollment may allow use of certain formal administrative procedures, they are prevented by the qualifications of their teaching staffs, by limitations as to supervision, and by inadequate housing and equipment, from undertaking those phases of the reorganization without which changed methods of administra-

tion signify little. As measured by any standard which places methods and materials of instruction above formal class-organization, they can in general lay slight claim to the title of junior high school.

Advantages of Movement toward Reorganization. — This must be our immediate conclusion. Yet because of the possibility of change in the factors leading most directly to this conclusion, and because of the opportunities existing even in the small school for a type of organization superior to that of the eight-four system, it should by no means be inferred that efforts to attain the fundamental junior high school objectives should be abandoned. Handicapped as the Massachusetts schools have been in their attempts at reorganization, it is significant that even the slight degree of success which they have attained seems to have brought noticeable benefits to the pupils concerned. Particularly in the matter of decreased elimination, the principals of these schools, almost without exception, report definite progress.¹ The change in the type of education offered — even though it is frequently a change only in form — may have marked effect in stimulating pupils' interest in school work. The fact that effort is being made to revise the organization and teaching methods of the intermediate grades in the light of procedures recognized as desirable offers valuable possibilities for the enlistment of community interest in the school's work. For the teachers and the supervisory officers of the school this effort means necessary direction of attention to changes in teaching-methods and in the curriculum, which will seldom be wholly fruitless. Hence the movement toward reorganization, far from being discouraged, should be heartily approved.

Need for Departure from Established Practice. — If reorganization in the small school is to be of greatest possible value, however, there must be more careful attention than has thus far been given to the form which it should take. The Massachusetts

¹ There is room for question, of course, as to whether the progress noted is due entirely to the reorganization. That it is to be accounted for in part, however, by the interest aroused through the new groupings of pupils and the more definite attention to the intermediate grades, it seems reasonable to believe.

schools have without exception adopted as their model the pattern laid down for them in the large junior high school. Our study of administrative possibilities has shown that they can never, with reasonable economy, wholly conform to this pattern. Since development of new types of organization will demand a long period of study and experimentation, the present schools must nevertheless continue to use generally accepted procedures (or substitute procedures allowing approximation of general practice) as their guide for the immediate future. But it is important that there be careful attention to types of organization which, though perhaps differing markedly from those of the large school, are better adapted to the specific needs of the school of limited enrollment and limited financial resources.

Bearing in mind the need for ultimate departure from established practice, it is our purpose in the remaining chapters to consider briefly both the work which the small school may most effectively attempt under its customary form of organization, and certain possible approaches to more effective practice.

CHAPTER XIII

A SUGGESTED PROGRAM OF STUDIES FOR THE SMALL JUNIOR HIGH SCHOOL

IN suggesting what is to be taught, whether in the junior high school or in any other grades of the school system, one is today more conscious than ever before of the uncertainty of much of our supposed knowledge of curriculum values. The numerous curriculum studies which have been made or are in progress seem in the main, however, to support the assumption that the principal elements of the program of studies may properly be the same for all junior high schools. Though detailed materials of instruction may vary from one community to another, and though individual schools may find it necessary to place greater emphasis than others on specific subjects of study, the purposes underlying the junior high school reorganization suggest certain offerings as generally desirable. Hence it is possible to outline a program which small junior high schools at large may find serviceable as a guide.

Method of Determining the Suggested Program. — In proposing such a program we can make no attempt at evaluation of its detailed content in terms of the fundamental principles and objectives which should govern “scientific” curriculum construction. Our purpose is frankly that of devising a system of courses by which the small junior high school may parallel as closely as possible the offerings of the large, as those offerings are now represented in common practice. Our procedure must consist, therefore, in selecting the subject-courses now generally approved in practice as fulfilling the aims of the junior high school reorganization; in arranging those courses in conformity with the principles which we have noted in our analysis of the functions of the junior high school;¹ and in making such modifications in

¹ For the general principles upon which all recommendations in this chapter are founded, see Chapter IV.

the resulting program as are demanded by the special restrictions under which the school of limited enrollment must work.

Table XXVII presents a program of studies thus derived, and planned to meet the needs of the small three-year school. It should be unnecessary to emphasize the fact that this is not the only program which may well be adopted by the small school;

TABLE XXVII

A SUGGESTED PROGRAM OF STUDIES FOR THE SMALL THREE-YEAR JUNIOR HIGH SCHOOL

<i>Grade VII</i>		<i>Grade VIII</i>	
English.....	(5) ¹	English.....	(5)
General Mathematics.....	(5)	General Mathematics.....	(5)
Social Studies and Guidance.....	(5)	Social Studies and Guidance.....	(5)
General Science (Hygiene).....	(3)	General Science.....	(3)
Art (Appreciation).....	(2)		
General Shopwork or General Agriculture.....	(2)	General Shopwork or General Agriculture.....	(2)
Domestic Science or Domestic Arts.....		Domestic Science or Domestic Arts.....	
Music.....	(1)	Music.....	(1)
Activities.....	(1)	Activities.....	(1)
Physical Training.....	(2)	Physical Training.....	(2)
		ELECTIVE	
Additional English ²	(2)	Additional English ² <i>or</i> General Language.....	(2)
Additional Arithmetic ²	(2)	Gen'l Agric. <i>or</i> Dom. Arts <i>or</i> Gen'l Shopwork <i>or</i> Dom. Science	(2)
		Business Train. <i>or</i> Art (Expres- sion).....	
<i>Grade IX</i>			
English.....	(5)		
Social Studies.....	(4)		
General Science.....	(5)		
Music.....	(1)		
Activities.....	(1)		
Physical Training.....	(2)		
ELECTIVE			
General Mathematics <i>or</i> Business Training.....	(4)		
Foreign Language <i>or</i> Art (Expression).....	(4)		
General Agriculture <i>or</i> Domestic Arts <i>or</i> General Shopwork <i>or</i> Domestic Science	(4)		

¹ Time-allotments included in this table are offered merely as illustrative of possible practice.

² Prescribed for pupils deficient in language or arithmetic.

nor is there special reason to believe that it is the best. It is one which allows fulfillment, however, of the important functions of the junior high school as they are generally conceived, and which lends itself to necessary limitations on administrative practice. The subjects of study here proposed are selected in accordance with the principles governing the junior high school reorganization as a whole — notably those which demand the continuance of essential training begun in the elementary school, the offering of insight into the most important fields of human interest and endeavor, the provision of opportunity for a beginning in desirable specialization, and the preservation of a proper balance between the various elements in the pupil's general training and his specialization. Courses are so arranged, moreover, as to allow a gradual transition from elementary-school to secondary-school methods, and to make possible the organization of subject matter on the basis of year or half-year units, each worth while in itself. As we shall presently show, their arrangement permits also the combination of grade-sections and the alternation of offerings made necessary by the problems peculiar to the small school.

1. Considerations Affecting the Program of Studies in All Small Schools

Nature of the Courses to be Offered. — Full realization of the value of any junior high school program of studies demands adaptation not merely of administrative organization, but even more of materials and methods of teaching, to the fundamental purposes of the school. In the light of these purposes the following suggestions are offered as to the general nature of each of the courses included in the proposed program, and of the school's provision for extra-curricular activities. These suggestions, like those for the general organization of courses, are derived from a study of approved practice in larger schools.

1. *English:* a three-year course required for all pupils, including oral and written composition, functional grammar, literature, and such special attention to the mechanics of reading and writing as may prove necessary for individual pupils. The English course as a whole should place important emphasis on appreciation in both literature and

composition. Opportunity for special attention to individual needs is afforded in the "Additional English" periods of grade seven, and in the elective work of grade eight. "Additional English" periods may be used in directed study by pupils not requiring individual assistance.

2. *Mathematics*: a two-year course in general mathematics for all pupils, followed by an elective course of one year for those who show special interest or ability in mathematics. The work as a whole should emphasize both the use of mathematics in daily life, and appreciation of mathematics as an important tool of modern science. Required work may properly include necessary review of elementary-school arithmetic; study of the significant uses of arithmetic in daily life; intuitive geometry; and an introduction to algebra through the use of simple formulas. Opportunity for special attention to individual needs is afforded in the "Additional Arithmetic" periods of grade seven, which may be used in directed study by pupils not requiring individual assistance. Elective study should carry farther the study of geometry and algebra already begun, with the possible introduction of pupils to simple numerical trigonometry, the use of logarithms, and the like.

3. *Social Studies*: a three-year course for all pupils, including systematic study of American history and geography, a brief survey of world history and geography, and elementary study of current problems of citizenship. The work of grades seven and eight should include a general survey of occupations, forming the basis for correlation of the various "general" courses in the three-year program and representing a part of the school's plan for systematic vocational guidance. Study of occupations may be incidental, as a phase of the general social studies, or may be introduced as a separate course.

4. *Science*: a three-year course required for all pupils, including study of the applications of science to the problems of everyday life. Properly organized as a "general" course, the work should afford an introduction to significant phases of hygiene, elementary biology, and simple geographical, astronomical, mechanical, electrical, and chemical applications of science. — For schools which find the offering of a separate course in agriculture undesirable, the general science of grade eight or nine may well be planned to include a study of science as applied especially to agriculture.

5. *Foreign Language*: a general-language course offered in the eighth grade, to be followed by opportunity for election of specialized work in French or Latin. The general language course should emphasize the nature of languages and their growth, the relation of

English to other languages, the opportunities which may be afforded by a study of foreign languages, both ancient and modern, and skills required in learning and using a foreign tongue. Small place should be given to formal training in either French or Latin. — For schools in which the general language course cannot be developed, the first foreign language elective should be specifically exploratory in nature.

6. *Music*: a required course in appreciation of music, of brief time-allotment, supplemented by choral singing and opportunities for development of musical appreciation in school assemblies. The required course may well be supplemented also by elective work in expression for pupils showing special aptitude, conducted either in classes provided by the school or through out-of-school study.

7. *Art*: a required course in art appreciation, of one year; followed by elective work in expression for pupils showing special aptitude. Work in appreciation should not be limited to the graphic arts, but should include sculpture and architecture as well.

8. *Physical Training*: required throughout the junior high school period, and giving special attention both to the development of habits of health and to the correction of health defects.

9. *Practical Arts for Boys*: an introductory required course in the general shop and in general agriculture, with opportunity for supplementary exploration in grade eight and for a beginning of specialization in grade nine. In addition to affording active acquaintance with the various phases of agriculture, the work in practical arts may well embrace woodwork, simple metal work, common uses of electricity, auto repair, and the like. The purpose of the course as a whole should be not merely to afford an introduction to important fields of industrial and agricultural work, but to develop a degree of skill in those manual processes of which the ordinary citizen may make desirable use.

10. *Practical Arts for Girls*: a program parallel to that for boys, with attention not merely to cooking and sewing, but to household budgeting, home decoration, and general household management, and with opportunities for introduction to important industrial occupations open to women.

11. *Business Training*: a course of approximately one-half year for survey and exploratory purposes and for the development of the simple clerical knowledge and skills of which the ordinary citizen may make desirable use; followed by elective work of a more specialized nature, but still emphasizing general survey rather than purely

vocational or high-school-preparatory values. — Few schools will find adequate justification for the introduction of specialized bookkeeping or typewriting courses in the junior high school grades.

12. *Extra-Curricular Activities*: one period or more each week throughout the junior high school course, devoted to club activities and the work of the home-rooms. Club activities should afford opportunity for further exploration and specialization in the fields touched upon in the curriculum, as well as for the development of more informal interests. As the extra-curricular program broadens its scope, regular place in the schedule should be given also to school assemblies and to the work of a general pupil-organization. After-school activities should include engagement by each pupil in some form of intramural athletics (either competitive or non-competitive), in special social activities, and in occasional school-and-community events.

Means of Providing for Individual Differences. — The program as here outlined offers provision for individual differences in interest and special abilities through the gradually increasing time given to elective work in each grade. Differences in general ability to learn, however, must be cared for in the main through enrichment of work for the brighter pupils, rather than through opportunities for more rapid progress. Though schools enrolling more than thirty-five pupils in a grade will find it possible to form two groups, according to ability, in required subjects, these schools as well as those of smaller enrollments are limited to single grade-sections in the elective work for which much of the required work forms a basis. It is necessary, therefore, that in the academic subjects, at least, all pupils within each grade shall maintain the same general level of progress. Hence the successful employment of this program — as, indeed, of any program in the school of small enrollment — demands the use of carefully differentiated assignments and of class methods which recognize the widely varying capacities of pupils who may be included in a single group.

Number of Daily Class-Periods; Length of Periods. — Administration of the program will be facilitated by the adoption of a school day of either six or seven periods in length, with additional provision for a brief introductory period at the beginning of each

day and for necessary recess and luncheon periods. The number of periods to be used should depend in principal measure upon the school's policy with respect to supervision of study. Greater flexibility in the scheduling of classes will be permitted by the adoption of seven daily periods of forty or forty-five minutes each. Class-periods of this length may in many cases, however, prove too short for the most effective use of supervised-study procedures. The most satisfactory program of study-supervision is commonly considered to demand the use of periods of approximately sixty minutes in length.¹ But the necessary placing of the school day upon a five-period basis, which is entailed by employment of these long periods, creates almost insuperable administrative difficulties in the small junior high school. The small school which intends to inaugurate a systematic program of directed study must therefore in general content itself with a schedule of six daily periods, each fifty minutes in length. It is upon a schedule of this type that the illustrative time-allotments in Table XXVII are based.

General Time-Allotments. — The allotments included in this table, as indicated in the accompanying note, are offered solely as examples of possible practice. They have been determined primarily with a view to the probable needs of the school which is restricted in the amount of time available for practical arts,² which has as yet developed no extensive program of extra-curricular activities, and which is obliged to reduce to a minimum the time devoted to most elective courses. So clearly does the problem of detailed time-allotments demand solution in most small schools on the basis of varied local considerations, that the figures here given would not be presented were they not necessary in subsequent discussion of possible administrative adjustments. Departure from them is to be expected in individual schools. It needs only to be emphasized that the time-allotments ultimately adopted should be based not on purely arbitrary judgment as to what is "appropriate," but on pupils' specific needs as revealed through carefully conducted study both of the school system as a whole and of conditions in the local community.

¹ Cf. the Massachusetts *Junior High School Manual*, p. 15. ² Cf. pages 156-157.

Time-Allotments to Elective Courses. — Special attention must be given to such apportionment of time-allotments in elective subjects as will permit suitable provision for alternative election. The groupings suggested in Table XXVII make possible three paired-elective combinations each in grades eight and nine. Though each pair, even within a single grade, need not necessarily be allowed the same number of weekly periods, it is obvious that the periods granted to the members of a given pair must be identical.

Provision for Alternative Election. — Provision for election on an alternative basis requires in the small school certain compromises which the large school may generally avoid. The chief difficulties are likely to be two. The need for balancing small groups against large, in the first place, may make necessary the offering on an elective basis of one or more subjects which might well be required. It has in the present instance dictated the scheduling of introductory business training as an elective in grade eight, in order to allow provision for an elective class in fine arts. In the second place, the pairing of classes frequently prevents election of certain subjects in each year of the school course. Thus, though fine arts is so paired that few pupils would be unable to elect it either in the eighth grade or in the ninth, it is open as an elective in only one of these grades to pupils who choose business training or foreign language. The fact that the elective program cannot be perfectly adapted to the possible needs of all pupils if it is to be placed on a thoroughly economical basis emphasizes the need for permitting desirable changes in the general nature of a pupil's elections at the end of the eighth grade. As the courses have been outlined in the preceding pages it should be possible to make such changes, inasmuch as success in none of the ninth-grade electives (including business training and foreign language¹) need be absolutely dependent on completion of the corresponding electives in the grade below.

A further handicap imposed by the need for economy is that of

¹ This will not hold true in case introductory French or Latin is substituted for general language. Under such circumstances election of second-year foreign language must be restricted to pupils who have completed the first-year course.

necessary restriction of elective offerings to two in each grade at any one class-period. The offering of more than two results in election on the one-out-of-three (or more) basis, which we have shown to be generally inexpedient in the school of fewer than fifty-five pupils per grade. Hence it is that the offering of practical arts for both boys and girls must constitute a paired group in each grade, without the feasibility (unless, of course, a school has more than its expected share of teachers) of alternation with other electives. For pupils whose needs are most appropriately met by extensive work in practical arts this necessity obviously constitutes no defect. It may require for pupils who do not elect such work as a beginning in specialization, however, the scheduling of unsupervised-study periods. That the work in practical arts may prove of greatest possible value and appeal to the latter group, it must be maintained throughout the three-year course on an exploratory basis, with specialized training provided through individual projects rather than through class instruction.

2. Necessary Adaptations of the Program of Studies in Three-Year Schools of Differing Enrollments

The matters thus far considered have related to the program of studies in any small three-year school organized on the usual basis, irrespective of its specific enrollment. It is obvious, however, that various administrative adjustments will be required to adapt the suggested program to the needs of schools of differing sizes.

Schools of Fifty or More Pupils per Grade.—In schools of fifty or more pupils per grade the necessary adjustments are relatively simple.¹ They will in principal measure take the form of combining pupils from two grade-sections in each elective class. Such combinations will ordinarily make it possible for the three-year school of no less than one hundred fifty pupils to offer the complete program in each year without reducing its average class-enrollment below twenty-five pupils.

¹ The administrative adjustments suggested for schools of differing enrollments are based upon the study of classification of pupils and the offering of electives in Chapters III and IV. In computations of average class-enrollments the activities-period is treated in the same manner as required academic classes.

Schools of from Thirty-five to Fifty Pupils per Grade. — Schools of from thirty-five to fifty pupils per grade will find it expedient to employ similar combinations. In order to provide a measure of compensation for their abnormally small grade-sections, however, they will need to make use of combinations in music and physical training as well. Classes in music may, in case of need, include in a single group all the pupils of the three grades. Though classes in physical training should properly be separate for boys and for girls, one group may be organized for all pupils of each sex. These combinations, in addition to the section-combinations in elective classes, will in general permit the school of forty-seven or more pupils per grade to maintain an average class-enrollment as high as the standard.¹ Schools of fewer than forty-seven pupils per grade must of necessity content themselves with an average class-enrollment of fewer than twenty-five pupils, unless they are willing to create more or less unsatisfactory teaching situations through further grade- or section- combinations.

Schools of from Thirty to Thirty-five Pupils per Grade. — The program as a whole is so planned as to place exactly one-third of the school's offerings on an elective basis when grade-divisions in elective subjects are not required. The school of from thirty to thirty-five pupils per grade, therefore, may maintain an economical class-average without the use of grade-combinations. Should an average of more than twenty-five pupils prove desirable, the suggested groupings in music and physical training may be employed.

Schools of from Twenty-five to Thirty Pupils per Grade. — For schools enrolling from twenty-five to thirty pupils per grade, combination of grades in required practical arts and in all possible elective classes is definitely necessary. To make possible such combinations in practical arts, it will be noted that alternative offerings are suggested for each year. During a year in which general shopwork is required for seventh-grade pupils it may be required in the eighth grade also to permit the teaching of the two

¹ This figure is obtained through use of the formula for average class-membership given in the footnote to page 48. The total number of required and elective subjects offered per week in each grade is in this instance 167 (the total number of teaching periods for the school as a whole) divided by 3.

groups of pupils in a single class. In this year the elective group in eighth-grade agriculture may be combined during its two class-periods with the corresponding group in the ninth grade. The next year's program may reverse the required and elective courses, providing agriculture for seventh- and eighth-grade pupils and elective shopwork for pupils of the eighth and ninth grades. Similar provision may be made in practical arts for girls through the alternation of the courses which have been designated in Table XXVII domestic science and domestic arts.

Use of the alternating program in practical arts may result in some injustice to individual pupils if measures are not taken to equalize where necessary the emphasis on the differing phases of the work. With the suggested alternation rigidly administered, pupils who study general shopwork, for example, as a required subject in the seventh grade, will receive during the three-year course a total of only four periods of shopwork as compared with six periods of agriculture. For those whose work begins with agriculture the time-allotments will be reversed. Solution to the problem must obviously be found both in the use of a large measure of individual instruction in elective classes and in the close correlation of the alternating phases of the work.

Further combination of grades may readily be provided in fine arts (in which instruction may be made largely individual), and in music and physical training. These combinations will allow maintenance of a class-average of at least twenty-five pupils in the school enrolling twenty-seven or more pupils in each grade. For the school of smaller enrollment it may be wise to reduce the number of elective offerings in grade eight, making introductory business training and general language required courses for one-half year each, and pairing the elective offering in fine arts with that in additional English. The program thus revised permits an average class-enrollment of a fraction less than twenty-four in the school of twenty-five pupils per grade.

Schools of Fewer than Twenty-five Pupils per Grade.—Schools of fewer than twenty-five pupils per grade will need to make use of all the special adjustments thus far suggested. By so doing they will find it possible to maintain, if not a standard class-enrollment,

at least an average enrollment nearly as high as their average grade-enrollments. The school of eighteen pupils per grade, for example, may assure itself on this basis of an average class-enrollment of seventeen pupils. Schools of still smaller enrollments may avail themselves if necessary of combinations in English, mathematics, the social studies, and science, providing alternations of the type noted in Tarbell.¹ Their organization on a three-year basis will mean, however, that not all their classes may be thus paired. They will find it necessary to make use either of a plan by which eighth-grade pupils may work in certain classes with the seventh grade and in others with the ninth, or of groupings of two grades only, with the third grade kept distinct from the others.

3. *The Program of Studies in Two-Year and Four-Year Schools and in the Junior-Senior High School*

Though the suggested program has been planned especially for the separate three-year junior high school, it is adaptable with slight changes to the two- or four-year school or to the junior-senior high school.

Two-Year Junior High Schools. — For the separate two-year school the studies proposed for the seventh and eighth grades may be assumed to afford a reasonably satisfactory introduction to senior high school work. The need for economy will doubtless demand in the smallest of such schools the abandonment of practical arts as an eighth-grade elective. The required eighth-grade work in this course may be retained. The resultant increase in time-allotments to required subjects may probably best be applied to general science, though the specific needs of the individual school should determine the ultimate apportionment of the extra periods. Assuming the grade-combinations previously suggested, further change should be unnecessary, since in the school of twenty-five pupils per grade or fewer such combinations will make possible a class-average of less than one pupil below the grade-average.²

¹ See Table XXIII.

² The average class-enrollment for the school of twenty-five pupils per grade, organized on this basis, would be 24.6.

Four-Year Junior High Schools. — In Massachusetts, at least, the four-year school will in all probability be one enrolling not more than twenty-five pupils per grade, since schools of larger enrollment will ordinarily retain the upper grades of the system as a part of the secondary-school organization.¹ In its seventh- and eighth-grade offerings such a school will find it expedient to parallel the offerings of the small two-year school, omitting the practical-arts elective in grade eight in order to allow full combination of electives in the two upper grades. The ninth- and tenth-grade work must be so arranged that in elective subjects, if not in required work, a combination of classes is feasible. This will mean no change in the formal organization of the ninth-grade work as we have outlined it, but it will demand the reduction of tenth-grade electives to a minimum. A suggested program of studies for the two upper grades is presented in Table XXVIII.

Combination of elective classes in this program is to be secured through alternation of subject matter in each course. The manner of arranging for such alternation in practical arts we have already indicated. Alternation in mathematics may be most readily achieved through the offering in both ninth and tenth grades of work in general algebra during one year and in general geometry during the next. Such division should not mean a revision to the traditional algebra and geometry of the four-year high school. The courses should present correlative phases of general mathematics, being distinguished from each other rather by the topics selected for emphasis than by differences in their general organization or methods of treatment. The course in business training will need to be so organized as to emphasize in alternate years different phases of the commercial studies. Foreign language alone cannot be arranged on a rigidly alternate basis. Though a shift in program such as that employed in Tarbell will permit combinations of classes in this subject, the most effective program for the school of eighteen or more pupils per grade will probably be attained by providing for separate classes each year.

¹ Cf. page 13.

TABLE XXVIII

A SUGGESTED PROGRAM FOR THE NINTH AND TENTH GRADES OF THE SMALL
FOUR-YEAR JUNIOR HIGH SCHOOL*Grade IX*

English.....	(5) ¹
Social Studies.....	(4)
General Science.....	(5)
Music.....	(1)
Activities.....	(1)
Physical Training.....	(2)

ELECTIVE

General Algebra or General Geometry <i>or</i> Business Training I or II.....	(4)
Foreign Language I <i>or</i> Art (Expression).....	(4)
General Agriculture or General Shopwork <i>or</i> Dom. Arts or Dom. Science.....	(4)

Grade X

English.....	(5)
Social Studies.....	(4)
General Biology.....	(5)
Music.....	(1)
Activities.....	(1)
Physical Training.....	(2)

ELECTIVE

General Algebra or General Geometry <i>or</i> Business Training I or II.....	(4)
Foreign Language II (no alternative) ²	(4)
General Agriculture or General Shopwork <i>or</i> Dom. Arts or Dom. Science.....	(4)

In four-year schools of fewer than eighteen pupils per grade a system of required-subject combinations similar to that used in Tarbell will be necessary. In so far as possible it will be desirable to preserve groupings which unite the seventh and eighth grades and the ninth and tenth. In the case of foreign language this can of course not be completely accomplished. Various types of adjustment may be used to meet the need for a consecutive language course; the plan suggested in Table XXIX is offered merely as an example of possible solutions. Combinations in

¹ Time-allotments included in this table are offered merely as illustrative of possible practice.

² Art may if desirable be offered as an elective in the school which does not combine grades in required subjects, by scheduling biology and ninth-grade art at the same periods and excusing certain pupils from the former course. In schools not making this provision, eighth- and ninth-grade classes in art should be combined.

other electives than foreign language may remain as in the larger four-year schools. The necessary groupings in required subjects will of course demand a shifting of subject matter from year to year similar to that proposed for the elective courses.

TABLE XXIX

SUGGESTED ALTERNATIONS TO ALLOW COMBINED CLASSES IN FOREIGN LANGUAGE

	ODD YEAR	EVEN YEAR
Grade 8	Reduce time-allotments in required classes to 24 periods; offer Foreign Language I as 4-period elective with unsupervised study as alternative.	Retain time-allotments in required classes at 26 periods; offer Additional English and General Language (2 periods) as alternative electives.
Grade 9	Foreign Language I elective, in combination with Grade 8.	Foreign Language II elective, in combination with Grade 10.
Grade 10	Supervised study, or added elective.	Foreign Language II elective.

It is to be noted that economical class-organization in a four-year school enrolling fewer than twenty-five pupils per grade demands a serious sacrifice of principles to expediency. In the program here suggested this is especially evident in connection with the requirement of biology. Even though this course is organized on a "general" basis, there is reason to question the desirability of requiring it of all pupils. The three years of general science proposed for the seventh, eighth, and ninth grades normally include an extensive biological content, so that the tenth-grade work can scarcely fail to be in considerable measure specialized in nature. Hence requirement of the latter course should always be subject to exception, and in schools in which the work proves not to meet the needs of the majority of pupils the course should be definitely placed on a basis of unrestricted election.

The proposal of two consecutive years of foreign language also demands qualification. The present position of foreign-language study in the junior high school would seem to be due in far

greater measure to a persisting belief in its disciplinary values than to its direct value for most pupils. It must doubtless continue to hold its place in the program of the small school, however, because of the entrance requirements of the large senior high school. It has therefore been included in the program here suggested. But so slight is its claim to recognition in most schools in comparison with commercial, industrial, and science electives, that it should in general be the first to be sacrificed to a need for economy. The small four-year school in particular should seldom hesitate, if need arises, to limit its foreign-language offering to a single year, placing upon the senior high school the responsibility for further training.

Junior-Senior High Schools. — In the junior-senior high school of fewer than twenty-five pupils per grade the most practicable plans would seem to be those proposed for the four-year school, with further combinations in grades eleven and twelve. Combined schools of somewhat larger enrollments will likewise find these plans feasible. But for the junior-senior high school of more than twenty-five pupils per grade it is suggested that a plan of subject-groupings which recognizes the seventh, eighth, and ninth grades as a unit will aid in the realization of the junior high school objectives. Hence such schools will do well to adopt in their lower grades the plan of organization proposed for the separate three-year school, avoiding combination of these grades with those of the senior high school. Arrangement of the program of studies on this basis may in a measure offset the loss of unity which the junior high school necessarily suffers when it becomes merely a part of a larger school.

General Limitations on the Use of the Suggested Program. — On the basis of factors disclosed by our preliminary study of enrollments, we have thus attempted the adaptation of a specific program of studies to schools of differing sizes. However seemingly dogmatic our statements, it must be recognized that actual employment of this program will be conditioned by many factors of which a consideration of total enrollment alone does not take adequate account. The number and qualifications of the teachers

available in a given school, and especially the school's material equipment, will frequently make impossible of application suggested plans which are otherwise sound. The fact that pupils vary in number from grade to grade, moreover, must in numerous instances — particularly in the larger schools — prevent the use of types of organization adapted merely to an average grade-enrollment. Hence the adjustments which we have proposed are to be regarded not as sure solutions of all administrative problems, but simply as illustrative of methods which, other things being equal, may be applied with reasonable expectation of success to problems occasioned by limited enrollment.

That we have endeavored to illustrate methods of procedure rather than to dictate specific practice is especially to be emphasized. Discussion of administrative adjustments has of necessity been based upon an assumed arrangement of courses and upon definite time-allotments in each course. If these are changed — as the time-allotments especially must and should be changed to meet the needs of individual schools — our conclusions as to the curriculum organization which schools of given size should adopt must change also. Whatever the program ultimately decided upon, however, the procedure for determining the practice by which the small school may most closely parallel the offerings of the large remains the same.

CHAPTER XIV

POSSIBILITIES OF IMPROVEMENT IN THE WORK OF THE SMALL SCHOOL

Improvement in Quality of Instruction a Fundamental Need. — However completely the small school may avail itself of the administrative procedures which we have suggested, its attainment of the fundamental objectives of junior high school reorganization must depend primarily upon the direction and quality of its instruction. The latter is a necessary resultant of the skill of the teachers whom it is able to employ, the vision and effectiveness of its supervision, and the adequacy of its equipment. In all these essential matters the small Massachusetts schools are seriously handicapped. It is important, therefore, that we give at least brief attention to possible measures for improvement in these directions, with a view not merely to the needs of Massachusetts schools but to the problems of other schools finding themselves similarly placed.

The most obvious source of possible improvement is of course that of increase in State subsidies. The need for such distribution of educational support as will give necessary aid to communities whose taxable wealth is small or whose limited school enrollments produce excessively heavy per-capita costs has been emphasized in many school studies. That complete equality of educational opportunity cannot be attained under most present systems of State aid is hardly to be doubted. But we are here primarily concerned with measures for improvement open to the local community either entirely without outside assistance or with very little such assistance. The question of extensive increase in State subsidies has therefore no place in the present discussion.

Assuming continuance of present conditions, it seems probable that the small junior high school can avail itself only infrequently of teachers both thoroughly trained for their work and with

extensive experience in junior high school teaching. The increasing attention of normal schools and teachers' colleges to the problems of junior high school education promises a rapidly growing supply of teachers who have had specific training for work in this field. With the extension of the junior high school movement in large school systems, however, the small school may for a long time to come expect at best only beginners in such teaching: its experienced teachers will continue to be drawn, as at present, to schools which can offer larger salaries and greater opportunities for specialization. The majority of the teachers remaining in small communities will be those whose experience in junior high school instruction has been too brief to make them acceptable in large-school positions, or whose training has not been such as thoroughly to fit them for their work.

Necessity for Training Teachers in Service. — Hence the small school must constantly be faced with the problem of training its teachers in service. To those of its staff whose experience has been brief it must give the special encouragement and guidance needed by all young teachers. Its teachers of longer experience but of training for other than junior high school work must have supervision which will enable them to adapt their instruction to the essential aims of the school. That the teachers themselves would respond favorably to the training involved seems more than probable. Our study of the quality of teaching in the present schools has of necessity been purely subjective; but such observations as could be made seemed to show an interest in junior high school methods and in the junior high school organization which offered an exceptionally promising foundation for constructive supervision. It would thus seem to be through improvement of teachers' work while they are engaged in teaching, rather than through the employment of teachers whose qualifications are markedly superior to those of the present school faculties, that there is greatest immediate hope of progress.

Special Responsibility of Supervisory Officers. — Training in service in the large system may be sought in considerable measure through State or university extension courses and through summer-school work. The fact that neither of these opportuni-

ties is freely open to the teachers in most small communities places added responsibility upon the supervisory officers of the small junior high school. The latter must not merely possess a sound conception of junior high school aims and organization, together with the administrative ability which will allow them to give their conception tangible form: they must have in more than ordinary degree the knowledge and skill necessary for the direct training of classroom teachers. If their work is to be effective, moreover, time must be given them for its adequate performance. Realization of both these conditions demands a far more positive recognition by the small community of the importance of supervision than is evident in most of the schools studied.

Possible Measures for Improvement of Supervision.—Three ways would seem to be open for the necessary improvement of supervision.

The first involves the employment of school principals with training and experience which fit them successfully to fulfill their duties, and the granting to these principals of the time necessary for adequate supervision. This method must of necessity involve a considerable increase in salary-expenditures over those now found in most of the Massachusetts schools, both because of the increase in principals' salaries which it demands and because of the need for employment of additional teachers to relieve many principals of at least a part of their teaching duties. Though the increase in expense will occasionally be lessened by the more efficient organization which the trained and skillful principal may create, added expense can seldom be wholly avoided. Except in the larger junior-senior high schools and junior high schools combined with elementary-school grades, moreover, the full value of the principal's special training and skill can hardly be realized. The small school has so few teachers as seldom to allow the principal to make effective use of his time in supervision alone: if he is to be continuously occupied he must devote a large share of each day to routine teaching, for which he is overpaid.

A second plan consists in the appointment in the junior high school (or in each school of a given system) not of a principal but

of a "head teacher" who is granted only slightly higher salary than that of other teachers, relieved of a small part of the customary teaching load, and entrusted with routine responsibility for discipline, records and reports, and the meeting of parents; the provision of clerical assistance which will free the superintendent of schools from such duties as purely formal correspondence, care of supplies, and the like; and the assumption by the superintendent of immediate responsibility for developing a constructive school program, for perfecting the school's organization, and for improving the work of individual teachers. In the very small community this plan would seem to offer greater opportunity than the first, both for reducing to a minimum the necessary additional expense, and for employing the time of the trained supervisor with greatest profit to the school system. Though the saving in salary which would generally result from the employment of a head teacher instead of a principal would seldom wholly meet the accompanying expenditures for clerical service, it would often go far in this direction. The most serious objections to the plan doubtless lie in superintendent's frequent lack of training to meet the detailed problems of the junior high school reorganization, and in the many duties which, even though relieved from purely routine matters, he would still be called upon to perform. Unless the interest of a given superintendent lay especially in junior high school work, and unless his previous training and experience had fitted him particularly to deal with methods of teaching in this field, there is serious question as to whether the desirable improvement could be effected. In the case of union superintendencies, moreover, the distances to be traveled and the numerous schools to be supervised would in many cases prevent necessary attention to the needs of any single school.

The third plan is that of establishing as assistant to the superintendent a person specially charged with responsibility for improvement of junior high school or junior-senior high school work. This plan, like the one just discussed, would make possible the substitution of head teachers for separate school principals. Unlike the preceding plan, it is applicable rather to union superintendencies than to small and completely separate school

systems, since only through combination of a number of small secondary schools would it be feasible to provide a supervisor who might devote full time to his supervisory duties. Though it involves greater gross expense than the second plan, it permits distribution of this expense among a number of communities. In the provision which it allows for a supervisor specially qualified to deal with junior high school problems, it would seem to offer definite promise of meeting in reasonably adequate measure the specific needs of the small school.

Which of these three plans may best be adopted in a given school system will be largely determined by the size of the system and by its general organization. Of the schools included in this study, it is probable that the larger junior-senior high schools must rely chiefly on the employment of separate principals, possessing sound professional training and given adequate time for supervision, for the improvement of their work. For smaller schools which are not found in superintendency unions the greatest hope of improvement would seem to rest in the freeing of the superintendent for detailed supervision. Those very small schools, finally, which are in charge of union superintendents, may in all probability adopt with greatest profit the system of union supervision suggested in the third plan.

Improvement in School Equipment. — The improvement in school equipment which is essential to adequate junior high school work is to be sought in many communities, as we have previously suggested, through retrenchment in the educational program. The attempt to support a complete system of elementary and secondary education must frequently mean the reduction of junior high school expenses to the barest minimum. Only as small towns and villages are willing to limit their local systems to those grades which they can support without serious difficulty may we expect, under present circumstances, marked improvement in the material conditions necessary to good teaching.

Special Restrictions on Separate Schools. — An unfavorable result of such limitation of grades is at present to be found, however, in the hampering effect of large senior high school entrance requirements on the work of the small school. The situation would seem

to be in many respects analogous to that existing between the senior high schools themselves and the majority of the Eastern colleges; and it is one for which a remedy is hardly less difficult to find. Improvement in the work of the small schools through more effective organization and supervision may allow them in considerable degree to create their own standards. Their freedom to direct their work on the basis of these standards may be measurably increased by efforts on the part of large school systems to give positive co-operation to the supervisory officers of the small schools. It is doubtful, however, that complete freedom is to be attained while the small schools are dependent, as they must be in such case, upon what is too often regarded as the favor of neighboring larger communities.

Desirability of Consolidation. — In the difficulty of achieving satisfactory articulation between the small junior high school and the large senior high school there would thus seem to lie an important argument for the consolidation of small junior and senior high schools in adjacent communities. From the standpoint of effective instruction as well as of financial economy,¹ the desirability of relatively large groupings of pupils would in itself suggest such consolidation. It is frequently made difficult, of course, by geographical conditions; though with the improvement of motor transportation considerations of distance are coming to have less and less weight. A stronger obstacle seems to be found in the unwillingness of independent townships to sacrifice any jot of control over the education of their children. Yet it should be recognized that consolidation of schools implies an equitable distribution of control among the districts concerned, and gives to these districts both the opportunity for a type of education which they could not separately provide, and freedom from the restrictions imposed by urban schools. In view of the advantages which it offers there would seem to be overwhelming argument for consolidation of neighboring junior high schools which do not enroll at least fifty pupils per grade.

¹ It should be noted that consolidation will seldom produce a lower total expense to the communities involved. The economy which should result is rather to be found in the more extensive educational opportunities and the more effective teaching made possible per unit of cost.

Greatest Immediate Benefits to be Derived from Improved Supervision. — Consolidation implies, however, the substitution of a large junior high school for a number of small schools; and it is with the problem of the small school that we are here concerned. Our review of those factors which determine direction and quality of instruction in small schools would seem to show greatest possibilities of immediate improvement through provision for more consistent and constructive supervision. Employment of teachers better prepared for their work and provision for more nearly adequate housing and equipment are both needed, and may both contribute in no little measure to the success of the junior high school in the small community. With limited funds for educational purposes, however, the majority of the small Massachusetts schools will in all probability derive greater immediate benefit from such increase in salaries as to allow employment of thoroughly trained and experienced supervisory officers, than from more liberal expenditures either for teachers or for equipment.

In individual communities, indeed, the provision of skillful supervision may in itself result in the securing of teachers of a higher level of potential ability. The fact that small school systems will doubtless continue to be looked upon as a training-ground for inexperienced teachers may be capitalized to their own advantage by the more progressive of such systems. The community which offers professional guidance and training of high quality to its new teachers, even without a higher salary scale than that of systems which provide only routine supervision, will find itself in a position to select the best of recent normal school and college graduates. Though by this means its annual turn-over of teachers may not be greatly affected, such a community may benefit markedly in the quality of its instruction.

Desirability of Experimentation with New Types of Organization. — The measures for improvement here discussed — those relating to the administration of the program of studies, as well as those concerned with teaching, supervision, and equipment — have assumed the small school to be organized on a basis paralleling as closely as possible that of the large. Whatever type of

organization may be adopted, the need for improvement in the matters dealt with in the present chapter must remain. But the inevitable handicaps which the small school must suffer under its present system of formal grades and classes suggests the desirability of experimentation with new types of organization promising greater flexibility than the system to which we have grown accustomed. Whether appropriate organization is to be sought merely in a changed scheme of pupil-groupings and school management, or whether it can be discovered only through a fundamental remaking of our present teaching methods and materials, is a question which cannot now be answered. The need for a new type of organization is, however, clearly evident. It is only to some plan as yet apparently undeveloped that we may look for possibilities of achievement in the small junior high school beyond those of mere compromise.

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